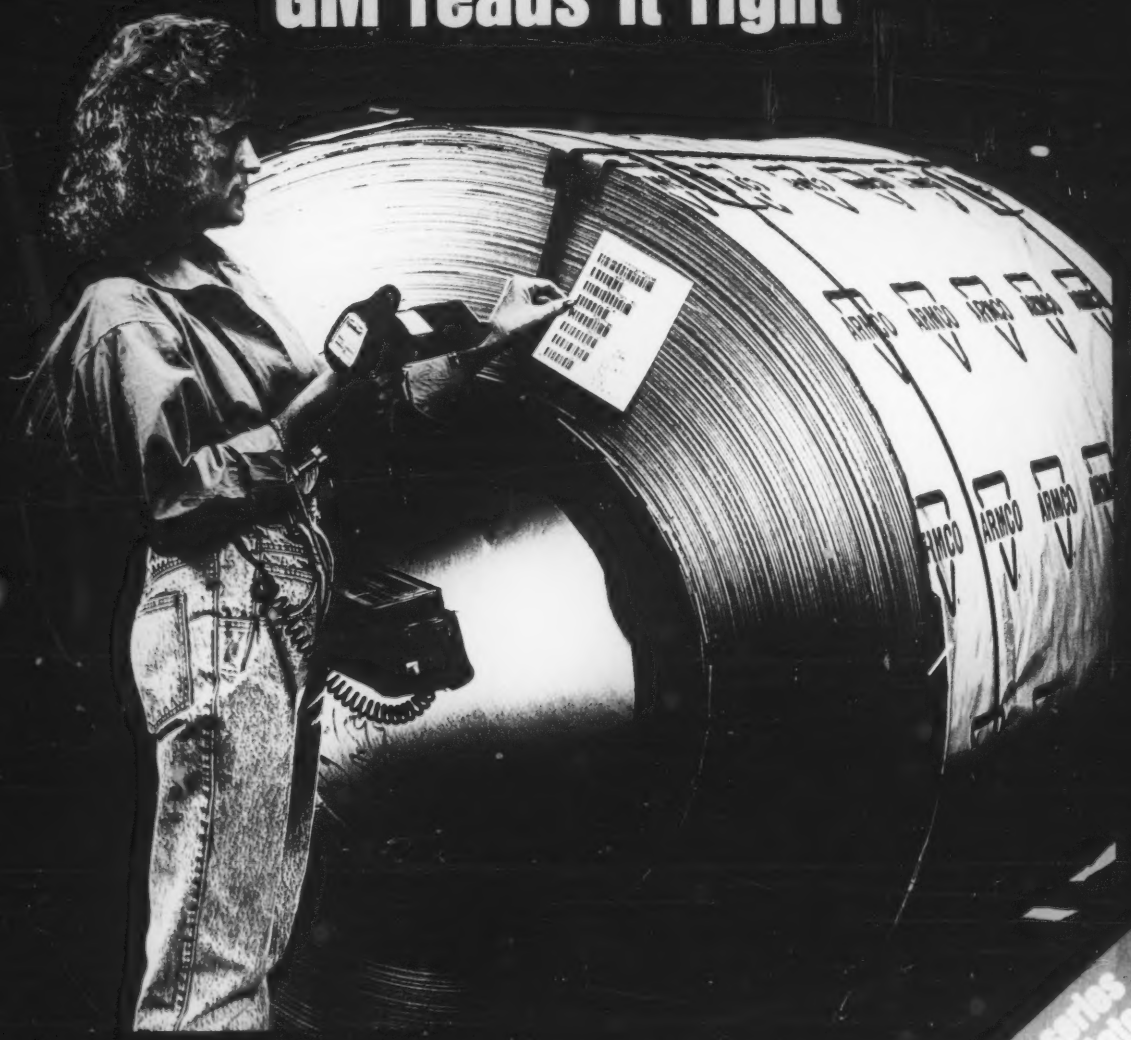
A HUEBCORE PUBLICATION

PurchasingWorld®

MANAGING THE BUSINESS OF BUYING

NOVEMBER 1990

EDI
GM reads it right



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- Software: goods or services?

New series Strategic Materials Management

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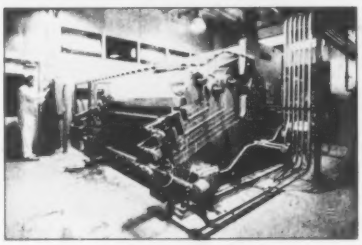

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PurchasingWorld

Ideas need training

Good ideas on purchasing are getting easier to find. Maybe it's the sense of urgency that surrounds our manufacturing industries today.

Or it could be that there really are a lot of good ideas that are positioning the purchasing discipline firmly at the forefront of operational improvement and profitable performance. That is exactly the rationale for our Strategic Materials Management series which will appear every month through 1991.

And it is almost to the word the title of a new book by Michael Harding called *Profitable Purchasing* **(240 pp. Industrial Press, New York, $29.95)**

In it, Mr. Harding tells us that the buzz words are winning more than our attention.

Just-in-time is one such concept. Author Harding is quick to point out that there is no such thing as just-in-time purchasing, but that there is "a purchasing strategy that supports and complements a plant practicing just-in-time manufacturing."

That may seem like a small distinction, but it is one that he believes is central to understanding that just-in-time is a business strategy and not a materials tactic. Inventory reduction, for example, is one of the many byproducts of JIT—but not its goal, he says.

Flowing from its successful implementation are flexibility, speed in adapting to changing customer requirements, improved quality, compressed production cycles, improved communication among people who directly impact quality, and elimination of all forms of waste: "Waste of time, waste of processing, waste of checking each others work, waste of count, waste of handling and moving, waste of kitting etc."

According to Mr. Harding, the JIT concept has made time and quality competitive weapons.

Mr. Harding acknowledges that he didn't start out to write a book on just-in-time, but that the concept, by virtue of its pervasiveness, lent a theme to the overall direction of the book. Half of its 15 chapters are devoted to discussion of price, negotiation, the legal aspects of purchasing, contracts, quality, MRO, and the like.

This book will be a good seller. Strong doses of common sense and valuable personal opinion about purchasing concepts and tools available to the professional purchaser will make it so.

And there's enough vision for anyone:

"The first strategy of purchasing is to educate and train itself to be a business partner with the firm's top management. If buyers are now clerks, they must train to become resource managers. If purchasing managers are bosses, they must become coaches and profit managers. If purchasing directors are politicians, they must become visionaries. The vision of the function and of the future will be translated to reality through training, and this will be no small task."

If the results of our recent reader survey on dollars allocated to the purchasing department for training are representative, you had better fight hard for more training dollars in your 1991 budget meetings. One-third of respondents had *no* money budgeted; about 25% budgeted just $100-700; and another third earmarked $700-2000. Only 10% budgeted more than $2000.

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PW PREDICTS

Do you remember?

The Iraqi-induced oil shock is leading many forecasting wizards to revise their expectations from near-recession to downturn. The gloom and doomers, meanwhile, are reporting that the oil shock will now be the difference between a minor economic correction and a severe one. While Saddam Hussein has certainly thrown a wrench into the works, the evidence has yet to verify that a recession is in progress, or that one is imminent.

What many of my colleagues fail to remember is that the economy's long-run prognosis, before the external shock (oil), was improving. Inflation was retreating (ever so gracefully); inflation-adjusted gross national product for the first-half of 1990 was adequate; wage pressures were subsiding as resources were quietly being reallocated due to rising unemployment, export orders were looking to be a continued source of strength; and, most important, the Federal Reserve was breaching the data warp and beginning to ease its grip on monetary policy.

Key to the recession forecast scenario is the belief that the pervasive impact of rising oil costs on prices will constrain the Fed's ability to steer domestic economic performance through the lowering of interest rates. This assumption, however, is in error. An analysis of the underlying fundamentals indicates that no excess demand (or too much money chasing too few goods) exists, which is the essential ingredient behind inflation. Transitory oil shocks incite rising prices, not inflation. If annualized real GNP growth dips below the 0-2.5% soft-landing target, the Fed is sure to respond. The Greenspan camp, which has historically followed a course of gradualism, is not going to initiate preventive medicine and risk erring on the side of excess easing and excess inflation—nor do we want them to.

Returning to the fundamentals of the moment, the fallout from higher oil prices, in terms of inciting a recession, is probably greatest next year. In the short run, rising oil prices have offsetting effects on GNP. While consumers will have purchasing power reduced, inventory builds will offset the drag being applied by consumer spending. Businesses, aware that the future holds the potential for rising prices, will attempt to increase inventory holdings for two reasons: future production costs will be higher because energy tags will be up; rising prices push profit margins up on current stocks. Always tempering inventory accumulation, however, are the threats of falling prices and declining sales in the future, at which times excess inventory is costly to possess.

The magnitude of the near-term inventory build depends upon the perception of business leaders as to the sustainabilty of oil in fueling higher prices. Unfortunately, the stronger the short-run inventory build, the greater the long-run threat.

If company decision-makers feel that higher oil prices will be sustained, the incentive for business investment is reduced, because higher energy costs lower the productivity of capital. Declines in capital spending, however, aren't felt for six to 12 months, implying that some other engine of growth will be needed to keep the current expansion flying and offset a capital spending slowdown in 1991.

Admittedly, there are ample reasons for legitimate concern, but unlike previous oil disturbances, the economy's domestic health today, in terms of inflation, is much different now than it was then. The recessions of the mid-'70s and early-'80s were, if not initiated, certainly worsened by the need of the Federal Reserve to deal with an existing inflation spiral. No such problem exists today, after four years of tight money—with the exception of the brief period following the 1987 stock market crash—by the Fed.

It's true that the annual rate of inflation, as measured by the consumer price index (CPI) before the Iraqi troubles, was stubbornly remaining in the vicinity of 4.5-5%. This level might be misleading, however, since quality advances and substitution possibilities are not accounted for. The CPI is a fixed basket of goods and it may be that a lower-priced substitute exists for some of the CPI components. The CPI also fails to see a difference in higher prices and higher prices due to quality improvements.

When the dust finally settles in the Middle East, the Iraqi crisis will probably be seen as an economic complication which did little to change the underlying fundamentals, not as an economic turning point toward recession.

By John Sheridan, chief economic editor

Demand for gas growing

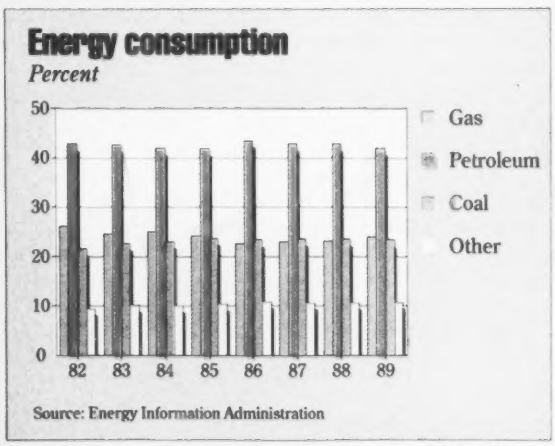
Overview: The Energy Information Administration reports that natural gas accounted for 22.4% of the U.S. energy market in 1989.

Supply: After a shortage of natural gas in the early 1970s and passage of government regulation, coal and nuclear energy were perceived as cheaper fuels with more reliable supplies. Twenty years later, the pendulum has swung back. Oversupply has made gas cheap, environmental concern has made it desirable, and the easing of government regulation is making gas the fuel of choice for the nineties.

Demand: With natural gas supplying the heating fuel for most existing homes, 44% of all gas sales come from the residential sector. Future sales growth to this market will likely be less than 1% annually, however, with negative growth possible if winters turn unseasonably warm. In the long run, growth in the customer base and marketing of more gas appliances should offset energy conservation activities and keep residential demand trending upward.

Industrial gas consumption has been falling since 1973, despite increasing levels of production, primarily because of technological (less energy required per unit of output) and structural (shift away from heavy manufacturing) changes. But, new technological advances and the repeal of the Fuel Use Act in 1987 are quietly reviving industrial and commercial gas demand.

Outlook: Despite the maturity of its traditional sources of demand and its dependence on weather, population, and government, gas is forecast by the American Gas Association to capture 28% of the energy market in 2010. In the commercial building market, Standard & Poor's is expecting a changeover from electricity to gas cooling systems, currently being imported from Japan.



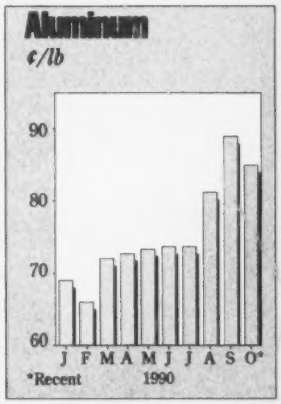
Source: Energy Information Administration

Copper turnaround to continue

August inventory advances led to an easing of prices, but the market was caught off guard in early September by a temporary price boost. In the seven days prior to September 12, the red metal's price climbed 20¢, reaching $1.51/lb on the London Metal Exchange (LME). Inventories, however, suggest that the latest turnaround is likely to last. Since mid-September, prices are again following a downward tilt. On October 1, the Comex Exchange price was $1.25/lb, while the price on the LME stood at $1.26/lb. Though speculative players may induce short-term blips in prices, copper's long-run trend is down, possibly to below $1/lb.

Supply concerns shocking cobalt

In early July, supply concerns and strong demand combined to push cobalt prices from a range of $7.70-8.20/lb to between $12.60-12.80/lb, which lasted until mid-September, when prices eased to $12.50-12.75/lb. The first of October brought new supply concerns, however, inciting another burst in prices. Following a Zaire mine cave in, cobalt is now trading in a range of $13.50-14.50/lb. Until this latest incident, supplies appeared in good shape with an easing of prices likely.



Aluminum prices to ease

On September 17, unalloyed ingot pierced the $1/lb barrier for the first time in more than a year on the London Metal Exchange (LME). Early October saw prices slide, with the domestic price falling to 84¢/lb and the LME price dropping to 87¢/lb. One industry source believes that the fundamentals just aren't there to support a price of over 85¢/lb for any sustained period of time. While ingot exports are up over 50% from year-ago levels, domestic deliveries are off 45%.

Domestic mercury falls $20

Domestic dealers have reduced prices for mercury sold in 76/lb flasks in lots of 50 or more. The most recent price is $240 a flask, which is $20 below the previous market price. In Europe, quotes for mercury remain firm at $180-200 per flask.

Prices in 1991

The transitory oil runup is sure to affect costs, but underlying supply and demand fundamentals for the majority of industrial commodities will hinder any sustainable price burst. Prior to the August 2 Iraqi aggression, the general sluggishness of domestic economic activity was in the process of subduing inflationary pressures. The combination of relatively weak end-markets and lower material input costs had clearly eased finished goods inflation.

It's obvious that if the Persian Gulf troubles intensify, oil's short-term threat to energy prices—and therefore production costs—is substantial. However, the 1991 outlook for both inflation and our economy's performance remains positive.

Analysts from the WEFA Group project, assuming no worsening in the oil picture, that prices will firm only gradually over the next 12 months, primarily because of an improvement in business activity. Of the major industries reviewed, WEFA foresees only transportation equipment and industrial chemicals displaying inflation of over 4% next year (see chart).

Metals prices should be relatively tame. WEFA forecasts iron and steel prices to rise 2.8% next year, with Data Resources, Inc (DRI), expecting tags to firm only 2.5%. For nonferrous metals, DRI believes prices will move up 6% in 1991. WEFA, however, says nonferrous price pressures will be less than 3%.

Oil costs will drive the overall producer price index higher because the energy component is heavily weighted. In terms of individual commodities, however, the intensifying of inflation is likely to be less severe. Lackluster demand and the risk of losing market share will limit the ability of producers to pass costs downstream. Capacity additions and well-balanced inventories will also work to keep a lid on prices in 1991.

Current price forecast

Percent change, year over year

	1990	1991
Industrial commodities	3.6	4.8
Energy	12.2	11.1
Textiles & apparel	2.5	3.1
Industrial chemicals	-1.4	5.1
Plastic resins	-5.9	2.9
Rubber & plastic	1.4	2.8
Lumber & wood	3.3	3.0
Pulp & paper	2.1	1.4
Iron & steel	-1.1	2.8
Nonferrous metals	-5.6	2.5
Machinery & equipment	2.9	3.6
Transportation equipment	3.4	4.8
Furniture & household durables	2.2	2.8

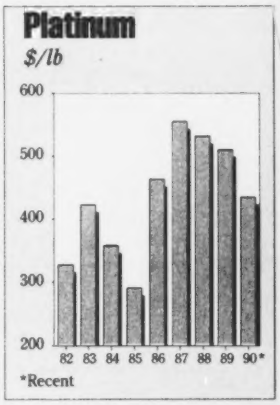
1989 equipment leasing strong

In a survey just released by the American Association of Equipment Lessors (AAEL), new leasing business volume in 1989 rose to $41 billion, an increase of 11% over 1988's level. The AAEL, located in Arlington, VA, reports that medical and manufacturing equipment made the strongest showings last year, up 4.2 and 6.7 percent, respectively. While new leases for the overall industry continued to grow in 1989, market declines occurred in trucks and trailers, computers, aircraft, and telecommunications. Computer and aircraft assets continue to be the most leased.

Platinum metal tags plunge

On October 21, platinum was trading at $514/troy oz on the U.S. Mercantile Exchange. Since that time, the precious metal's price has plummeted more than $80. In fact, the October 1 price of platinum, which stood at $432/oz, was the lowest in four years. While palladium is easing as well, now at $97.50/oz, rhodium remains firm, at $5350/oz.

Platinum's price drop appears to be the consequence of recession speculation, given its strong ties to the industrial sector. The longer-term view by many industry insiders, however, is that this is just a temporary lull before the next price burst. The combination of rebounding Japanese demand next year, increasing emission standards and potential supply troubles should result in a more bullish market down the road.



EG market is firming

At the beginning of last spring, excess supply of ethylene glycol (EG) was surfacing, prices were eroding and demand was waning. The Middle East chaos incited by Hussein, however, has allowed the EG market to tighten up quickly. A first-quarter market slowdown led to production cuts and a drawdown of inventories, which now have producers running plants at capacity. Traders are stockpiling supplies to hedge against potential output troubles from one Saudi facility, as well as upcoming antifreeze demand, which is expected to be strong this winter. The domestic contract price for EG is now 27-29c/lb.

High-temp plastics

Overview: High-temperature plastics will replace metals, glass and ceramics in many markets over the next five years. The Freedonia Group expects future demand for traditional plastics to remain relatively flat. The Cleveland-based researchers, however, report that advanced polymers, such as thermoplastic polyesters, polyphenylene sulfides, polysulfones, advanced composites and polyimides will witness yearly growth in excess of 11% through 1994.

Demand: While the greatest end-market growth (10%) will come from the aerospace and aviation industry, the electrical and electronics sector will continue to be the leader in high-temperature plastics in terms of quantity demanded, despite forecasted growth of only 3.5% per year through 1994. Activities such as wave soldering and vapor-phase soldering, which require short-term, high-production temperatures, are driving current needs.

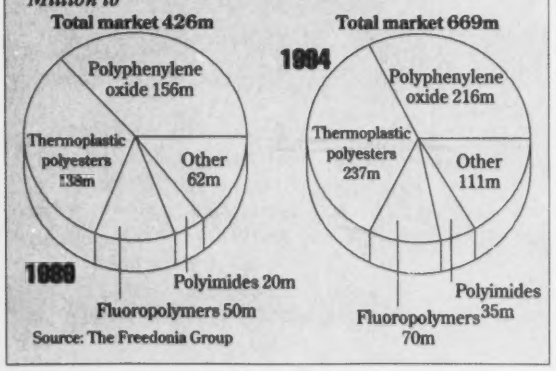
The appliance market will continue as the second largest, volumewise, but phenolics has been replaced by polyphenylene oxide as the product leader. Also during the next half-decade, automotive under-the-hood needs will spur 10% annual growth from that sector, with industrial consumption rising 8% per year.

Supply: Though the industry is fragmented among 30 or more firms and overall industry concentration is low, several key engineered grades of high-temperature plastics are supplied by only a few companies. Currently, producers of high-temperature plastics are seeking to increase the value of their products by downstream integration into distribution, manufacturing and compounding.

Outlook: In 1994, thermoplastic polyester consumption is expected to reach 237 million lb, making it the dominant high-temperature resin.

Advanced high-temp plastics

Million lb



Source: The Freedonia Group

Yarn market getting stronger

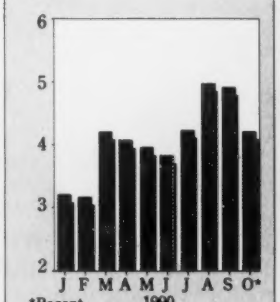
No significant improvement has occurred thus far this year in the yarn market, but sectors of strength are appearing, generating new optimism. In plied yarns, demand is improving for 12/2 and 16/2 combed and carded cotton. The ring-spun market is also witnessing a moderate revival, as is spun polyester and dyed yarns. Though the open-end yarn market continues to struggle, with T-shirt sales currently off, expectations are that demand here will improve by December.

Versatile PVC going strong

According to The Freedonia Group, Cleveland, polyvinyl chloride will penetrate further into existing markets and exploit new opportunities in the years to come. Growth is expected to top 4% annually through 1994. Already PVC is the most versatile plastic and the second highest volume resin in North America. The major end users of PVC will continue to be pipe, pipe fittings and conduit, which currently account for over 40% of the North American market. Partially fueling PVC's increasing consumption will be vinyl windows and doors in the construction sector. However, the strongest demand is expected to surface in the medical market, where growth is expected to top 7%.

Nickel

$/lb



Nickel tags sinking fast

The high level of volatility which has plagued the nickel market for most of the year has not subsided. Early October saw the price of nickel in a free fall toward $4/lb. Just three weeks after the year's highest London Metal Exchange (LME) price of $5.39/lb was established (September 12), nickel's price lost more than $1, to $4.24/lb. A number of industry analysts perceive $4.00-4.50/lb to be the appropriate range for nickel according to current supply and demand factors.

Global styrene capacity growing

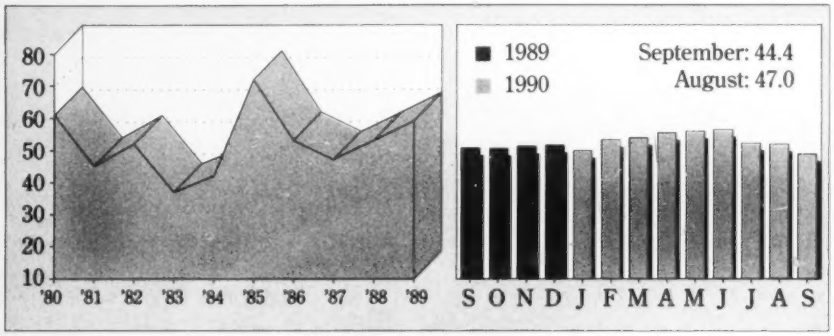
Worldwide styrene production facilities are scheduled to appear, worrying many observers, who warn of severe overcapacity. Many of the new plants are scheduled to appear in the Far East, with that region's capacity increasing by 2.3 million metric tons per year between 1990-1994.

BUSINESS DATATRAK

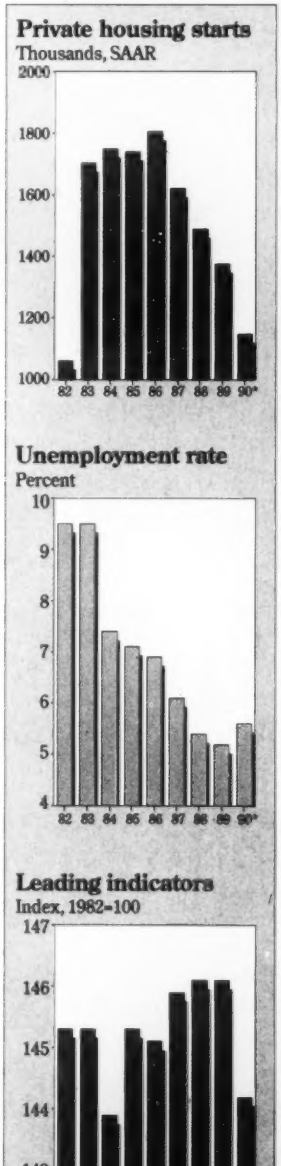
By John Sheridan, chief economic editor

N. A. P. M. business barometer

Based on five indicators (employment, inventories, new orders, production, vendor performance)



Leading indicators



KEY ECONOMIC TRENDS

What's beyond pain

A football coach recently explained to me that on the really great hits, the poor soul being attacked moves beyond a state of pain and into a state of euphoria. Unfortunately for the economy, the question is not what lies beyond our current economic strain, for the answer is simply, at this moment, more pain. The challenge now is to forecast the magnitude of this additional hurt.

Economists wanting to report the dismal don't have to work very hard to put together enough rhetoric to sound a convincing cry for recession. Housing starts haven't been this wretched since the last recession (see chart). The purchasing managers' index is clearly reporting that the brief burst in manufacturing last spring has now retreated (see chart above). The widely followed barometers of consumer sentiment, the University of Michigan index and the Conference Board index, both plummeted in August, with consumers in September continuing to be wary. Oil costs, meanwhile, are propelling prices throughout our entire system and domestic decay is already showing up in the form of a tightening job market (see chart).

While these are signals of legitimate concern, a convincing argument can be assembled which stops short of predicting recession.

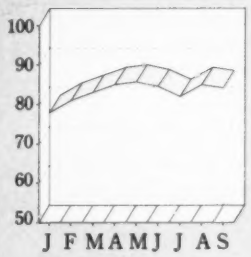
First, while more than half of the 11 components in the leading economic index had a negative weight in September, the composite index is not in a state of sustained decline, traditionally a prerequisite for recession (see chart). Moreover, the index is often criticized for giving a disproportionate weight to manufacturing, the sector hit hardest by the Fed's inflation-taming strategy.

Second, the WEFA Group is reporting that recent hikes in foreign interest rates are behind the now-weakening dollar. The devaluation of the dollar, especially against the Japanese yen and the German mark, is expected to persist, boosting exports and improving the gross national product (GNP) picture for quite some time.

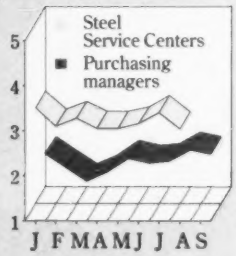
Also helping GNP is our massive armed forces mobilization. U.S. military presence in Saudi Arabia nearly eliminates the possibility of a contractionary fiscal policy either this year or next, regardless of what happens with taxes. By the time the dust settles in the Middle East and defense spending resumes its fu-

Steel

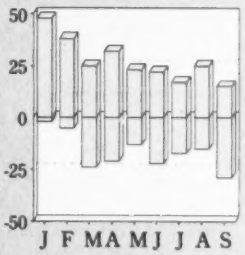
Operating rates



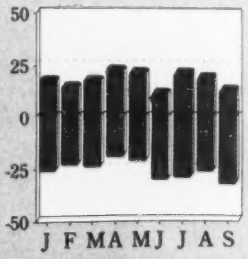
Inventories
(months supply on hand)



Demand (Steel Service Centers)
(Percent of respondents)



Demand (NAPM)
(Percent of respondents)



Source: Steel Service Center Institute
NAPM Steel Buyers Committee

ture downward tilt, consumer confidence will have been revived.

The Fed's soft landing has clearly infected some regions and industries of the country with recessionary conditions. Amid the gloom there are some positive signs, however, that the overall economy will avoid a classic correction and continue along in a growth-recession mode, which is a period of pronounced decline in the rate of growth of a still-growing economy.

Further deterioration in the main economic indicators (such as unemployment) is likely. In terms of eliminating growth completely, however, the economy may have not yet reached its point of maximum pain tolerance.

METALS SCENE

Steel

To date, the troubles in the Persian Gulf have had little impact on the world steel market. While the direct effect of rising oil prices has been minimal thus far, the longer-term effects could be very troublesome. The oil shock has produced an atmosphere of uncertainty which is likely to stimulate a scaling back of capital and discretionary projects by decision makers, thus lowering future steel demand.

Despite substantial destocking and price erosion over the past 12 months, producers in the U.S., Japan and Western Europe continue to perform well.

Surprisingly, the U.S. market remains relatively tight. Steelmakers have been announcing price hikes, but the environment of slow growth is making it hard for higher tags to be realized. Discounting from list prices is being reported as common. With the firming of oil prices capable of dragging steel's end-markets down even further, one would think upward pressure on prices is unlikely.

A possible steel shortage, however, may be in the making. WEFA notes that if the economy absorbs the current oil shock and business activity manages to improve, the possibility of labor disruptions, maintenance-related facility outages and material supply problems could bring about soaring steel prices sometime during the next six months. Labor contracts at the nation's largest steel producer, USS, expire at the end of January. Moreover, prices for key inputs such as scrap, zinc and nickel have been pressured higher of late.

Though the shortage scenario is a possibility, it's more likely that no shortage will materialize, demand from the transportation, construction and capital goods end-markets will weaken further, and prices will either remain stable or ease. Buyers need to keep an eye on steel inventory-to-sales ratios. Inventory of the nation's steel buyers is now at its highest level since 1988, indicating that some hedging is already occurring.

Import prices
(Compared to domestic)

STEEL BUYERS
ABOVE 29%
SAME 29%
SLIGHTLY BELOW 42%
SUBSTANTIALLY BELOW 0%

SERVICE CENTERS (CARBON)
ABOVE 2%
SAME 74%
5-10% BELOW 24%
11-20% BELOW 0%
OVER 20% BELOW 0%

Scrap

Prices for No. 1 heavy melting scrap rose to $116/ton in August due to a combination of factors. None of them, however, permanently shifted the demand or supply curves, which means that the current price boost is simply transitory.

Three factors had a definite impact on the market: the auto sector's retooling and model-year changes which temporarily drained the market of prompt industrial scrap; greater-than-expected production; and continued high levels of scrap exports. Concerns that a shortage might persist induced buyers to build stocks, forcing prices higher.

The WEFA Group believes prices have now peaked for No. 1 heavy and that a market correction, with prices easing $2-6 per ton by year-end, is in progress.

REGIONAL PERSPECTIVE

Purchasing reports

The NAPM's national Report on Business expresses the views of over 300 purchasing executives, across 20 industries, located in 50 states. The national purchasing managers' index accurately charts the course of the economy providing timely notice of turning points. Regional variances, however, are often smoothed out in national averages. Numerous city and state purchasing reports exist which provide a closer look at region-specific performance. In these indexes, a reading above 50 means expansion, while a reading below 44 signals recessionary conditions.

Massachusetts: The manufacturing economy took a big hit in August, with the economic index falling 8.4% to 46.9. High levels of export activity and new orders kept the region strong in July when the national index turned down, but new export orders in August were reported down by 25% of the buyers surveyed. Though production remained up in August (53.4), rising inventories (52.8), falling employment (39.7) and rising prices could begin to seriously affect the area.

Rochester: Improving-to-stable conditions were reported by the majority of purchasers in August. Employment plans are stable, delivery times are as expected, and new order leadtimes aren't showing any change. The three-month forecast was fairly pessimistic, however, because of concern over inventory accumulation and rising prices.

Detroit: Near-recession conditions were being expressed by Detroit buyers in August, as the index fell to 44.1. Traditionally, a reading of 44 in these indexes signals recessionary conditions. The auto industry is applying most of the drag, registering 36.2, while the non-auto index stands at 48.5. If oil prices keep rising and a fall auto strike at GM becomes reality, conditions here could get worse.

Cleveland: The oil-and-related-prices jump threatens to slow this region even further. Employment activity continues to worsen. Inventories are being selectively reduced, but generally appear in-line. New orders were higher in August, but speculation was that upcoming orders would be down because of economic uncertainty. Buyers report that recession here is a very real possibility.

Chicago: Inventories are moving down in response to diminishing expectations about the future. Chicago's business barometer measured 49.2 in August, but the yearly average remains slightly above 50. The production slowdown that began last summer is persisting. New orders, which fell drastically in July, were flat in August, with order backlogs continuing to shrink.

Arizona: The economy is growing more slowly since the Iraqi crisis began. Speculative and real effects of the oil run-up are tempering activity. While employment, production and new orders all rose in August, their growth rates were slower than in July. Inventories are being cautiously trimmed by buyers, with delivery times lengthening slightly.

Hiring activity: Research shows that year-to-year hiring patterns closely track economic performance, regionally or nationally. Over the past year, employment activity in few regions has escaped the Fed's strategy of slowing growth in order to tame inflationary pressures. According to The Conference Board, help-wanted advertising is down in every region but the west south central (see table).

Help-wanted advertising

Index (1967=100), SAAR

	July 1990	July 1989
National Index	132	149
New England	78	109
Boston	84	107
Hartford	64	111
Middle Atlantic	61	76
New York	40	49
Philadelphia	50	66
Pittsburgh	95	102
East North Central	90	103
Chicago	85	105
Cincinnati	151	159
Cleveland	63	79
Detroit	47	56
Milwaukee	63	72
West North Central	91	99
Kansas City	114	128
Minneapolis	80	90
Omaha	167	182
St. Louis	68	69
South Atlantic	144	182
Atlanta	196	230
Baltimore	126	161
Charlotte	183	188
Miami	116	149
East South Central	160	173
Birmingham	196	176
Memphis	129	139
West South Central	203	194
Dallas	128	146
Houston	327	296
New Orleans	144	144
Oklahoma City	128	127
San Antonio	162	148
Mountain	297	308
Denver	183	211
Phoenix	354	364
Salt Lake City	437	417
Pacific	242	261
Los Angeles	144	166
Sacramento	575	515
San Diego	547	670
San Francisco	238	252
Seattle	334	294

CURRENT PRICES

Looking past the obvious

Purchasing pros must not lose sight of the underlying supply and demand fundamentals in their current day-to-day decision making. While the propaganda is thriving on soaring oil costs and worse-case Persian Gulf scenarios, a closer look at the economy's price/inflation foundation is necessary.

Despite forecasts of double-digit energy cost increases this year and next, the impact of higher fuel costs won't be uniform across all industries. During the first six months of 1990, as reported by the producer price index, the industrial commodity inflation rate slowed to 2.1%. Disinflation (rising prices at a declining rate) was witnessed in most major industries, including: rubber and plastics; pulp and paper; machinery and equipment; lumber and wood products; and furniture and household products. Deflation (falling prices) was actually occurring in chemicals and metals. The same weak-end markets which were mitigating industrial prices prior to Iraq's aggression will now temper downstream directed price hikes from domestic producers.

Nevertheless, with regard to the industrial commodities index, rising oil prices will have a significant impact. The industrial inflation outlook has now been revised up to 3.5% this year and 4.5% in 1991.

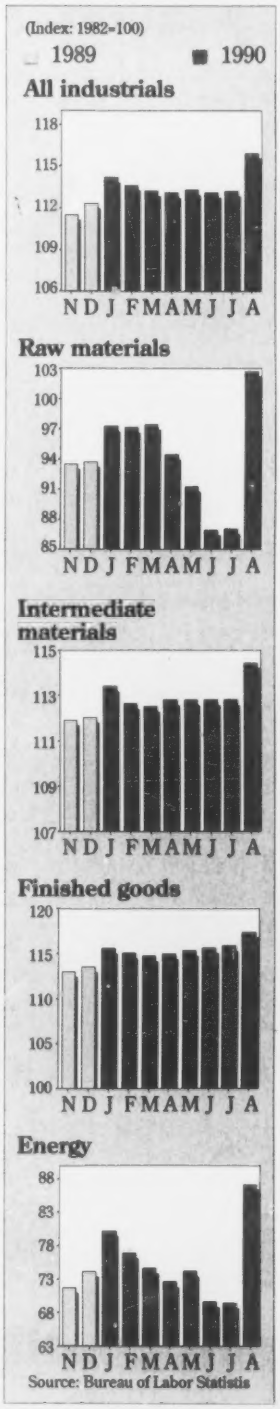
But, if production facilities are intact at the conclusion of the Middle East crisis, it could be that excess supply will exist on the market, leading to lower oil prices than existed prior to Hussein's aggression of August 2, implying substantial disinflation in the future.

This month's breakdown

Index 1982=100

	Latest level	Month ago	Year ago
Bearings	131.0	0.1	4.5
Bolts, nuts, etc.	117.5	1.0	3.0
Chemicals, inorganic	112.4	-0.3	1.4
Chemicals, organic	109.3	-0.1	-3.7
Concrete products	113.7	0.4	1.8
Corrugated containers	107.9	-0.5	-4.1
Cutting tools, small	113.1	0.0	1.3
Electrical lamps (bulbs)	130.7	0.2	4.6
Electronic components	117.7	-0.8	-1.7
Fans and blowers	123.8	0.2	3.5
Foundry and forge products	117.3	0.1	1.9
Fuel oil (residual)	45.4	9.9	-5.6
Furniture, commercial	133.6	0.1	2.7
Gasoline	82.1	17.3	30.1
Glass, flat	107.4	0.0	-1.5
Glass containers	120.7	-0.1	4.1
Gypsum products	102.5	-2.7	-5.0
Hand tools	135.2	0.1	5.5
Hand tools, power driven	121.5	-0.1	3.8
Industrial furnaces	127.3	-0.3	1.7
Integrating and measuring instruments	126.9	-0.2	5.5
Internal combustion engines	121.4	1.5	4.8
Lubricating oil	115.7	1.8	3.6
Lumber millwork	130.2	0.2	1.7
Material handling equipment	115.5	0.1	2.6
Metal containers	114.3	0.2	2.1
Metal mill shapes	132.4	2.4	-2.6
Metal tanks	114.3	3.4	2.6
Metalworking machines	123.1	0.2	3.6
Motors and generators	133.8	0.1	3.2
Motor trucks	127.8	0.0	2.2
Nonferrous metals	136.9	3.2	0.0
Office and store equipment	108.8	0.2	-1.0
Paperboard	133.3	-1.2	-4.8
Paper boxes and shipping containers	129.3	-0.1	-1.1
Paper office supplies	121.4	0.7	-0.8
Paint	125.3	0.5	4.1
Plastic resins	122.3	0.2	-4.2
Precision measuring tools	128.8	0.0	2.8
Pumps and compressors	119.7	0.2	3.5
Refactories	123.0	0.0	3.1
Rubber belts and belting	118.8	-0.1	3.2
Scales and balances	109.1	0.0	2.2
Switch gear	124.6	0.1	4.4
Textiles, synthetic fibers	106.5	0.2	0.3
Textiles, gray fabrics	117.4	0.8	1.5
Tires and tubes	96.5	-0.5	-0.8
Transformers and power regulations	121.0	1.0	2.3
Welding equipment	127.8	0.3	4.3
Wire and cable	143.5	2.1	0.4

Industrial prices



Source: Bureau of Labor Statistis

PROCUREMENT

Perception versus reality

The Purchasing Managers' Index (PMI) fell again in September, the third consecutive month it has traveled lower. Manufacturing health, according to the approximately 300 buyers surveyed by the National Association of Purchasing Managers (NAPM), is ailing. In June, the PMI stood at 51.1, implying expansionary conditions for both the manufacturing sector and the economy overall. Just three months later, the PMI now resides at 44.4, its lowest level since December of 1982, when the current expansion began.

A number of factors should be considered. First, while a PMI reading of less than 50 signals worsening conditions, the index has to fall below 44 before indicating a decline in real gross national product (GNP). With September being the final month of the third quarter, a decline in real GNP wouldn't show up until the fourth quarter data is out, at which time the perception from decision makers will hopefully be unaffected by Iraq.

Currently, accelerating oil prices and potential conflict in the Middle East are significantly altering perception away from reality. At some point, a solution to Saddam Hussein will be arrived at and oil prices will come tumbling down. Given the underlying fundamentals in our economy have changed little since June, when the PMI reached its 1990 peak, it seems that once tensions in the Persian Gulf are eased, the domestic economy will return to the expansionary conditions which prevailed prior to this crisis.

Returning to the latest Report on Business from the NAPM, new export orders continued to be a sign of strength, displaying expansionary conditions for the 33rd consecutive month. Conversely, employment came in below 50 for the 19th consecutive month (41.5). Good news did come from 88% of the survey respondents, who say that capital spending plans over the next 12 months have not been revised.

Investment outlook

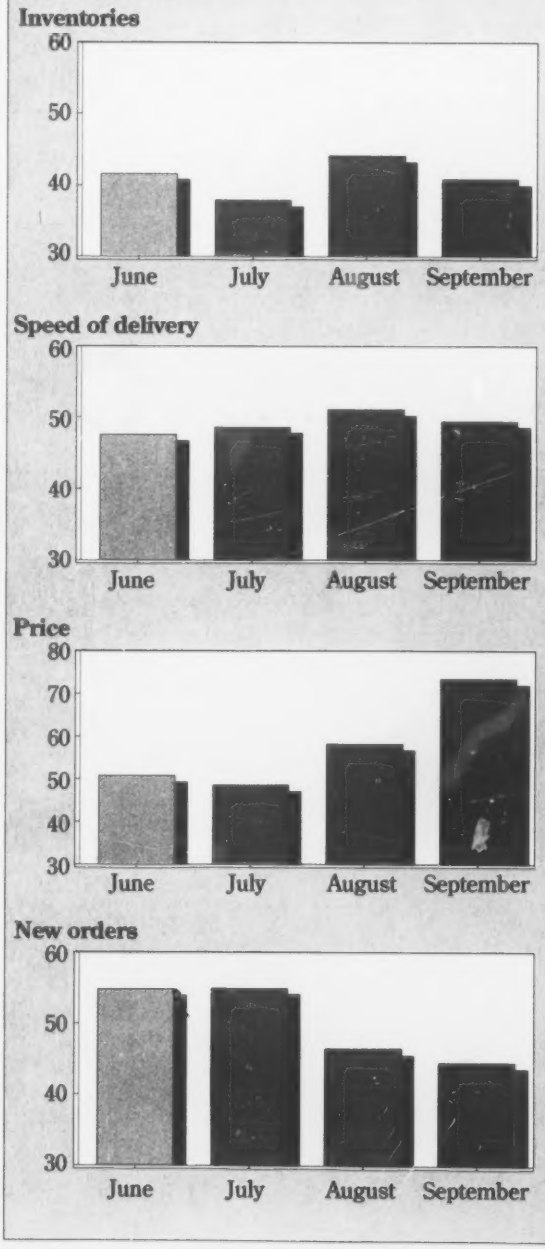
Inventory and capital investment greatly impact quarter-to-quarter changes in gross national product (GNP). They also play major roles in the determination of an economy's business cycle.

Currently, economists at Prudential are predicting that a short-term (two to three quarter) buildup in inventories will, along with moderate increases in capital spending, stabilize the economy in the short

NAPM procurement trends

(Seasonally adjusted diffusion indexes)

An index where 50 is defined as the neutral level, to the extent a reading is above 50, it represents an expansionary tendency. More particularly, rising inventory prices, and new orders are seen as positive signs of economic growth. A trend towards slower deliveries is similarly interpreted.



run and keep the nearly eight-year-old expansion flying.

After stagnating in the second half of 1989, industrial activity picked up last February. Though production has dipped since spring, the productivity of capital is stable, implying that capital's return on investment remains good. In addition, the NAPM's purchasing managers' index and Federal Reserve's production index remain above levels associated with recession. All this suggests that no plunge in factory output is imminent and that business fixed investment will remain healthy.

While the oil shock has little short-run effect on capital spending decisions, it does alter inventory activity. Near-term incentives to boost stocks are now presenting themselves to buyers. First, the Fed has pursued a policy of easier money since mid-1989, making the cost and availability of financing inventory the best in over a year. Second, rising oil prices mean greater future production costs. In order to hedge against tomorrow's higher input costs and buffer the price shock to customers, current inventory holdings will be beefed up.

Speculative additions to inventories and continued investment in equipment should offset any near-term consumer spending slump which the current environment of uncertainty might incite.

LATEST SPOT MARKET PRICES

	Latest price	Previous month	Year ago
FERROUS METALS			
Steel, bars, stainless, 303, cwt	190.00	188.00	179.00
Steel, bars, HR carbon, 1000 series, cwt	19.20	19.20	21.00
Steel, bars, HR carbon alloy, cwt	25.00	25.00	24.50
Steel, bars, CF carbon 12L14, cwt	34.00	34.00	34.50
Steel, plates, carbon, cwt	23.25	23.25	25.20
Steel, plates, strip mill, cwt	23.60	23.60	23.60
Steel, plates, alloy, cwt	34.05	34.55	34.55
Steel, sheets, C.R., class 1, cwt	30.65	30.65	29.65
Steel, sheets, HR, cwt	23.00	23.00	22.25
Steel, sheets, stainless, 304, cwt	124.00	124.00	124.00
Steel, strip, HR carbon, cwt	22.10	22.10	22.10
Steel, strip, CR carbon, cwt	36.18	36.18	38.30
NONFERROUS METALS			
Aluminum, unalloyed ingot, lb	0.84	0.83	0.82
Aluminum, alloyed ingot, 355, lb	1.10	0.93	0.95
Aluminum, secondary ingot, 380, 30000 lb lot	0.81	0.80	0.73
Antimony, lb, merchant	0.85	0.85	0.95
Cadmium, N.Y., dealer, lb	2.60	2.90	4.60
Copper, electrolytic wire bars, lb	1.42	1.42	1.19
Copper, cathode, full plate, lb	1.31	1.32	1.10
Gold, N.Y., troy oz	389.40	387.00	402.90
Lead, common, N.Y., lb	0.47	0.50	0.42
Magnesium, pig ingot, (99.8%), lb	1.63	1.63	1.63
Mercury, 50 fl. lots, N.Y., fl.	250.00	260.00	270.00
Molybdenum, oxide, canned, lb	3.35	3.35	3.32
Nickel, cathode, dealer, lb	4.20	5.20	5.85
Platinum, dealer, oz	441.00	498.00	494.00
Silver, N.Y., troy oz	4.73	4.80	5.20
Tin, N.Y., dealer, lb	2.75	2.78	4.38
Zinc, high grade, lb	0.73	0.81	0.82
Zinc, die casting alloy, No. 3, lb	0.81	0.89	0.74
PAPER (unit=ton)			
Uncoated book #3 offset	940.00	940.00	940.00
Uncoated bond #4, 83 bright	940.00	880.00	900.00
Watermarked bond, 20 lb sheets	1090.00	1090.00	1095.00
Unbleached kraft paper, grocery bag, 30 lb	630.00	630.00	660.00
Bleached kraft, grocery bag, 30 lb	800.00	800.00	800.00
Solid bleached kraft paperboard, folding	830.00	830.00	830.00
Kraft linerboard, 42 lb, domestic, East	370.00	370.00	410.00
Newsprint, 30 lb, East	565.00	565.00	540.00
TEXTILES (unit=lb)			
Acrylic, open-end spun, 1/18	1.43	1.52	1.50
Carded cotton, ring-spun, 18/1	1.58	1.61	1.61
Carded cotton, open-end spun, 18/1	1.46	1.46	1.40
Combed cotton, ring-spun, 100%, 18/1	1.83	1.83	1.85
Nylon, textured, 70/2	2.70	2.70	2.45
Polyester, 50/50% carded cotton, 30/1	1.73	1.83	1.87
Polyester, ring-spun, 100%, 18/1, unbranded	1.50	1.64	1.60
Rayon, high-wet modulus	1.36	1.36	1.34
CHEMICALS			
Acrylonitrile, tanks, lb	0.35	0.35	0.40
Ammonia, anhydrous, tankcars, ton	100.00	90.00	123.00
Benzene, gal	1.70	1.30	1.50
Caustic soda, metric ton	355.00	355.00	320.00
Cresylic acid (over 25%), tanks, lb	0.55	0.55	0.55
Formaldehyde, 37%, (12%-15% meth.), tanks, lb	0.14	0.13	0.11
Glycerine, synthetic, 96%, tanks, lb	0.74	0.74	0.79
Methanol, syn., barges, f.o.b. Gulf Coast	0.35	0.40	0.50
Naphthalene, crude, tanks, lb	0.17	0.17	0.16
Phthalic anhydride, molten, tanks, lb	0.39	0.39	0.41
Polyethylene resin, low density, lb	0.40	0.38	0.52
Polypropylene, homopolymer, lb	0.45	0.40	0.51
Polystyrene, general purpose grade	0.50	0.50	0.59
Polyvinyl chloride, pipe grade, lb	0.36	0.36	0.44
Soda ash, light 58%, 100 lb, paper bags	150.00	150.00	135.00
Styrene monomer, 99.6%, tanks, lb	0.43	0.41	0.49
Sulfur, dark, Tampa, FL, long-ton	134.00	128.00	142.00
Sulfuric acid, 66%, commercial, tanks, ton	69.89	69.89	66.86
Titanium dioxide, anatase, reg., carlots lb	1.02	1.02	0.95
Xylene, Gulf Coast, spot, barge, gal	1.50	1.29	0.95
BUILDING MATERIALS			
Lumber, 2x4 fir, mbf, cl	341.33	341.33	345.63
Lumber 2x4 pine, mbf, cl	337.06	337.06	321.47
Plyform, 3/4", msf, cl	645.91	645.91	570.00
Plywood, 5/8", msf, cl	375.20	375.20	360.21
Cement, type 1, bulk, ton	63.22	63.22	63.88
Sand, concrete, ton, cl	6.88	6.88	7.17
Ready-mix concrete, 3000 psi/cu. yd.	49.28	49.28	48.81
Crushed stone, base course, ton, cl	6.29	6.29	5.84
Concrete blocks, sand/gravel, 8"x8"x16", per hundred	84.64	84.64	87.17
Reinforcing bars, grade 60; per cwt	22.01	22.04	22.10
Asphalt paving AC-20, ton	107.32	107.32	108.53
Concrete sewer pipe, 24", per ft, cl	17.88	17.41	18.00
FUELS			
Crude oil (W. TX Int.), bbl	35.50	28.00	20.40
Diesel (reseller rack, Chi.), gal	0.93	0.77	0.51
Heating oil No. 2 (N.Y.), gal, spot	0.95	0.77	0.56
Heating oil No. 2 (Gulf spot), gal, spot	0.93	0.77	0.48
Fuel oil No. 6 (N.Y.), tank car contract	23.00	21.25	18.75
Gasoline (prem unlded N.Y.), gal, spot	0.99	0.91	0.78
Gasoline (reg unlded N.Y.), gal, spot	0.93	0.86	0.59
Kerosene (reseller rack, Chi.), gal	1.02	0.86	0.60
SCRAP MATERIALS			
Aluminum, old sheet & cast, cl	0.50	0.49	0.43
Aluminum, secondary smelters, mixed clips	0.55	0.54	0.50
Brass, yellow solids, carloads	0.64	0.64	0.57
Copper, No. 1, brass ingot makers', carload	1.07	1.10	0.93
Copper, No. 2, brass ingot makers', carload	0.95	0.99	0.84
Steel, no. 1, hvy., dlvd., Pitts., ton	113.00	119.00	99.00
Steel, no. 1, hvy., dlvd., Chi., ton	112.00	116.00	108.00
Zinc, old, smelters scrap, cl	0.30	0.30	0.35
Zinc, die cast slab, smelters scrap, cl	0.36	0.36	0.37

Sources: Metals Week, American Metal Market, Engineering News-Record (20-city averages), America's Textiles International, Journal of Commerce, Chemical Marketing Reporter, Pulp and Paper Week.

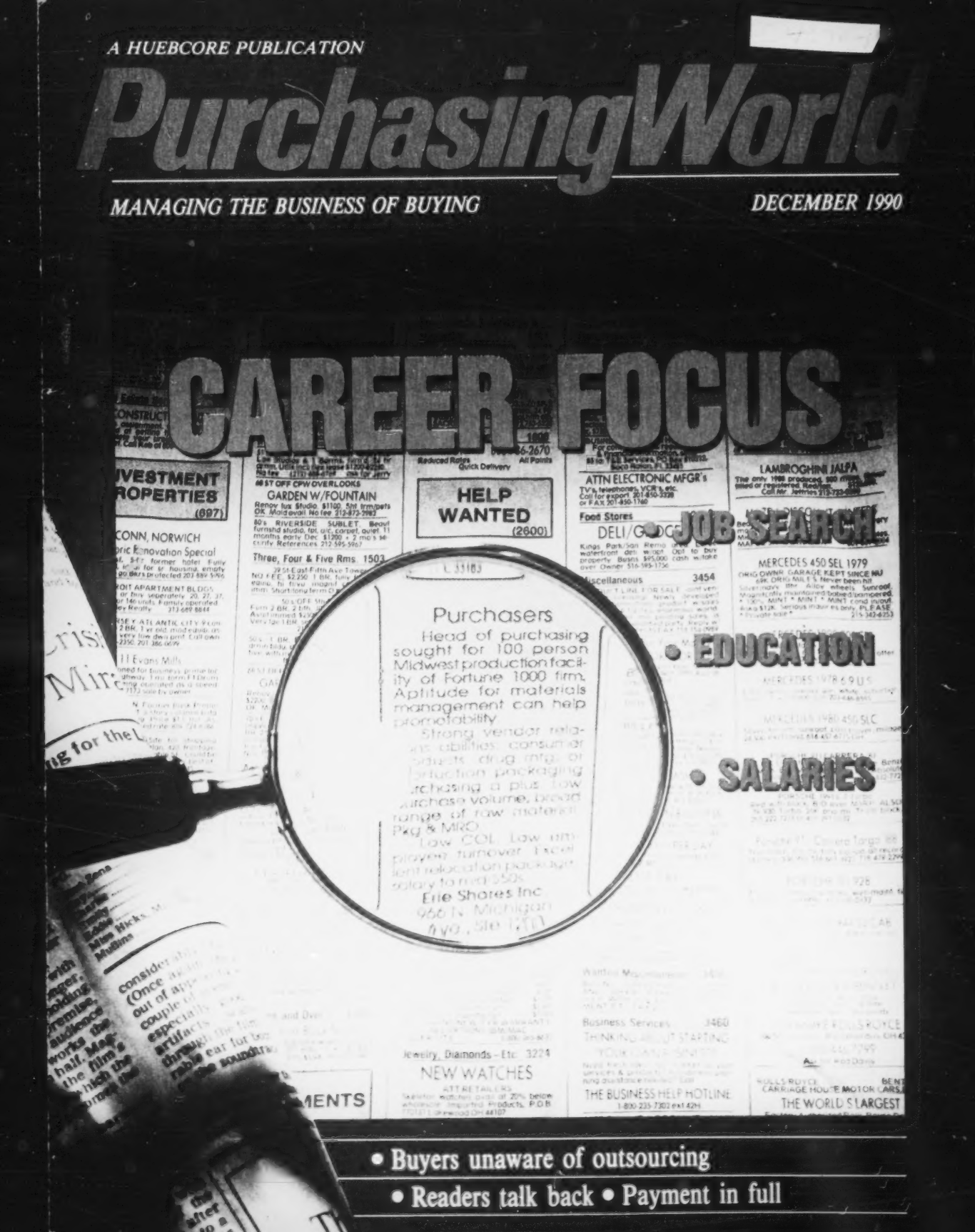
* This page has been revised to better serve you.

A HUEBCORE PUBLICATION

PurchasingWorld

MANAGING THE BUSINESS OF BUYING

DECEMBER 1990


CAREER FOCUS
HELP WANTED (2600)
JOB SEARCH
EDUCATION
SALARIES
Purchasers
Head of purchasing sought for 100 person Midwest production facility of Fortune 1000 firm. Aptitude for materials management can help profitability
Strong vendor relations abilities; consumer products drug mfg. or retail packaging purchasing a plus. Low purchase volume, broad range of raw materials Pkg & MRO
Low COL Low employee turnover Excellent relocation package salary to mid-$50s
Erie Shores Inc
966 Ft. Michigan
Ave., Erie, PA

- Buyers unaware of outsourcing
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PurchasingWorld

Strategic vision

Mike Doyle is a man of great passion when it comes to talking about the challenge to purchasing professionals to become strategic procurement management (SPM) thinkers.

Those who attended this year's Procurement Forum V of the Strategic Procurement Management Institute at the University of San Diego under Dr. David K. Burt got a glimpse of that vision.

They felt the power of ideas that have already changed the way in which leading U.S. manufacturers like Honda of America, General Electric, Hewlett Packard, Xerox, and Compaq Computers look up and down their value chain of customers and suppliers to create strategic alliances.

Mike Doyle bridles at the suggestion that purchasing professionals are operating at any level less than that which is needed to give them sustainable competitive advantage in today's global business environment.

His vision is daunting in its implications. It provides a guide to what an ideally integrated purchasing function should look like when it is operating in real partnership as part of the strategic procurement team.

Try this self-evaluation yardstick as a way to benchmark your own department. It was developed by Dr. Burt and Mike Doyle as a way for executives and members of the procurement team to measure their progression toward strategic procurement management.

Stage 1—Reactive

Processes paper, functions clerically, staffed from receiving dock, acts in reactive/crisis mode, reports at very low level;

Stage 2—Mechanical

Staff may have college education, paperwork processed by computer, reactive and transaction driven, purchases on spot market, measures price reductions, reports at low level, considers only supply, price, quality;

Stage 3—Semi-professional

Professional staff, uses proactive approach, negotiates long-term contracts, occasionally measures cost of ownership, considers suppliers resources, reports to higher management, offers cross-functional support, utilizes training and education, authority to make purchasing decisions;

Stage 4—Professional and strategic

Employs integrated materiel strategy—including activity-based purchasing, uses concept of velocity in development and production, measures continuous improvement, uses materiel as competitive weapon, has a global view, measures "all-in-cost," G.M. of outside shop, centralizes purchasing strategy but decentralizes purchasing activity, shares purchasing power with management.

There may not be many fours out there, but there is no excuse not to be a solid three. For more on how to make progress to Stage 4, please see Mike Doyle's article in this issue (the second in this series) on the Fundamentals of Strategic Procurement Management.

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PW PREDICTS

Fleeting glory?

Warriors returning from battle and athletes after a triumphant performance share one understanding; all glory is fleeting. According to most, the glory associated with our nation's longest peacetime expansion is now fading. Though I agree that few things stand time's test forever, in uncertain times, situations are rarely as simple or as bleak as the consensus indicates.

First, let's take a closer look at the definition of recession. The historical rule of thumb is two quarters of negative growth in inflation-adjusted gross national product (GNP), but that isn't always the case. The 1980 recession only had one negative quarter. While the National Bureau of Economic Research's own definition is somewhat clouded, it emphasizes a pervasiveness of decline in a wide number of economic data series. Many sectors have been struggling for some time now, including autos, furniture, residential construction and non-auto manufacturing, but the economy has continued to maintain its slow-growth progression. Quarterly changes such as the recent second-quarter GNP fall-off are necessary but not sufficient in declaring an economic turning point.

The underlying fundamentals still suggest a slow rate of expansion through 1991, given that global leaders resolve the Iraqi situation by early next year. Assuming this, a number of factors will push the domestic economy forward over the next 12 months: despite a significant drop in confidence, no sharp decline in spending has come about, implying that consumer spending habits die hard; business spending for capital equipment will maintain its modest advance, as firms strive to improve productivity and increase market share; the export outlook, which is already strong, keeps improving as the value of the dollar continues to fall relative to other currencies; once the Iraqi aggression is erased, a surplus of oil will appear on the world market, pulling fuel prices and inflation rates down; and the Federal Reserve is facing two legitimate reasons for easing monetary policy.

The first of those reasons is that Federal Reserve Chairman Alan Greenspan has mentioned an easier monetary policy would be appropriate if fiscal policy were tightened, which the new budget accord implies. Second, the Bush administration doesn't want a recession and their Fed-bashing will begin to exert more pressure, as will public sentiment, incited by the rising of unemployment. Monetary fine-tuning seems likely, especially since in the beginning, a mild recession looks the same as a severe one. Look for the Fed to reduce the federal funds rate by at least 25 basis points (100 basis points is 1%), once the dust settles from the release of fourth-quarter GNP numbers.

No change in the Fed's strategic plan (maintaining slow growth so as to reduce inflation to practical zero), however, is forthcoming. Therefore, once domestic markets rid themselves of the negative Middle East shock, the Fed will actively adjust money supply to keep it consistent with slow growth.

Further worsening in employment is likely, but any additional deterioration does not necessarily imply recession. The unemployment rate hasn't reached its ceiling yet and could top 6%. But, given that the natural rate is near 5.5% in a slow-growth economy and that the existing rate was held artificially below that level for quite some time, human resources won't likely be reallocated appropriately (unemployment of 5.5%) until mid-1991.

At the National Association of Business Economists' Annual Meeting last September, Geoffrey Moore, a member of the Business Cycle Dating Committee, reported that only two components of their four-step signaling process had turned negative. Since the system only confirms recession with a roughly six-month lag, and the data was actually improving before Iraq's invasion of Kuwait on August 2, no recession declaration seems possible in 1990. The good news, however, is that the average length of post-World War II recessions is 11 months, so that by the time we officially find out we are in a recessionary period, it will most likely be half over.

If the economy does worsen to the point of serious economic correction, it will be a Saddam shame, with the recession's duration and depth also being dependent upon the uncertainty caused by the Middle East.

By John W. Sheridan
Chief Economic Editor

Recycled PVC opportunities

Overview: as much as 494 million lbs of PVC could be diverted from our annual solid waste stream, according to a recent study by the University of Toledo's College of Engineering. Although Europeans have been engaged in vinyl bottle recycling for years, only 5.2 million post-consumer-use pounds were recycled domestically last year.

Roughly one-third of the total amount of plastic sold, or approximately 22 billion lbs, finds its way into the solid waste stream every year. Vinyl bottles account for less than 1% of the country's 360 billion lbs of annual solid waste. However, as the survey's project director Dr. Robert Bennett commented, "The potential demand for recycled PVC is clearly there; that isn't necessarily the case for other materials in the waste stream."

Demand: the study focused on uncovering consumption applications that meet two criteria: non-food contact and durable product uses (which remove the waste from the system for years to come). Over 100 major applications were identified. In terms of volume, the greatest potential exists in building and construction (sewer pipes and vinyl siding). Uses for recycled vinyl bottles in the consumer and institutional sector include household chemical containers, office accessories and garden hoses. Refuse containers and floor/machinery mats were uncovered as major industrial uses.

Supply: approximately 207 million lbs of blowmolded bottles, using PVC, are produced each year, which is well below the study's identified potential demand of 494 million lbs. As Roy Gottesman, executive director of the Vinyl Institute (Wayne, NJ) stated, "The point of the study is that there will be a receptive, sustained market for whatever we can separate and recycle."

Outlook: if the recycling potential of vinyl plastic bottles is to be achieved, collection and sortation technologies must be improved, which seems inevitable.

Polyvinyl chloride recycling projections

million lbs.

	1989 Actual market	Recycling potential market %	volume
Calendering	974	5	50
Extrusion	5267	7	349
Injection molding	401	5	19
Blow molding	207	15	31
Compression molding	28	11	3
Dispersion molding	201	1	1
Dispersion coating	373	1	2
Export	802	5	40
Other	54	0	0
Total	**8307**	**6.0**	**494**

* Volume total does not sum due to rounding

Barge operations stable, rebounding

The market has been engaged in a major transformation, caused primarily because of overbuilding in the late 1970s and early 1980s. With demand growing and barge supply back in line, market participants are once again optimistic about future performance.

The transport of chemicals is one factor solidifying barge traffic. According to the U.S. Army Corps of Engineers, domestic shipments in the chemical sector are up 25% since 1985. This, and the fact that utilization rates have rebounded from 25% in the mid-1980s to nearly 90% today, are stimulating some chemical companies to add to their fleets through the purchase of new barges.

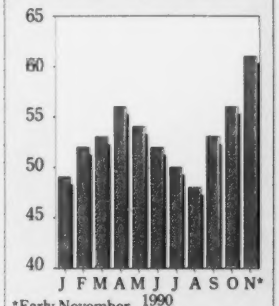
Plastics prices still not resting

One result of the Gulf: domestic plastic producers have been raising prices, and it's likely they will try to raise them some more in December. Higher feed stock costs (for ethylene, propylene, styrene, and vinyl chloride) are the reason behind the producers' needs to up tabs.

In early November, the market price for low-density polyethylene was 46-48¢/lb, up 10¢ over the price it commanded in late August. The story was the same for high-density polyethylene and polystyrene. Both have risen over 10¢ in less than three months, and are now at 53¢/lb and 61¢/lb. Whether higher prices will stick depends on whether current orders from buyers are aimed at building inventory. With almost everyone expecting business activity to slow at any moment, customers may start to temper new orders, which will begin to put a lid on prices.

Polystyrene

¢/lb, monthly average



*Early November 1990

McDonald's moves to paper bags in '91

Beginning in the first quarter of 1991, McDonald's will no longer be using bleached kraft paper in their carry out bags. In the firm's continuing attempt to help reduce packaging waste, it has notified suppliers that it will switch to unbleached kraft paper in its packaging. Moreover, by the second quarter of next year, the company wants its natural kraft bags to possess 100% recycled content. McDonald's Happy Meal and napkins already use recycled paper.

Hard materials expanding

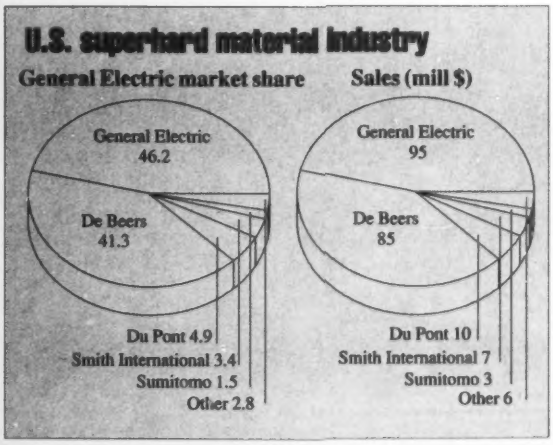
Overview: Following the last recession, sluggish performance continued to encompass the hard (tool steel, ceramics, and cemented carbides) and superhard materials market (industrial diamonds and cubic boron nitride). In the past two years, however, yearly demand growth has topped 14%. In 1989, the market's value exceeded 1.7 million dollars, boosting the 1982-1989 annual rate of increase to 5.2%.

Demand: According to a recently released study by Leading Edge Reports, Cleveland, U.S. hard material consumption rose from 364,400 tons in 1982 to 450,000 tons in 1989. Heavy capital spending in the latter half of the 1980s helped drive tool steel, the oldest and largest hard material category, which witnessed annual volume growth of 5% from 1982-1989.

Meanwhile, U.S. superhard material consumption fell just short of 100 million carats in 1989, up from 42 million carats in 1982. Between 1982-1989, industrial diamond demand rose 11% annually. Even greater demand, however, existed for cubic boron nitride, where yearly consumption soared 43%. Though the volume of these two superhard materials grew nearly 13% annually during this period, the value of their market increased less than 2% a year, reflecting generally weak prices.

Supply: The 13 largest producers of tool steel account for only 26% of domestic sales, with imports claiming nearly 65% of the market. In the cemented carbide material industry, Kennametal is the market leader, with 28% of the market. In hard ceramics, Norton and Exolon-ESK make up 49% of the market.

Outlook: Changes in manufacturing methods (factory automation and equipment investment) and materials (replacement of carbon steel) will continue to propel hard (2.7% annually) and superhard material (8% annually) demand this decade.



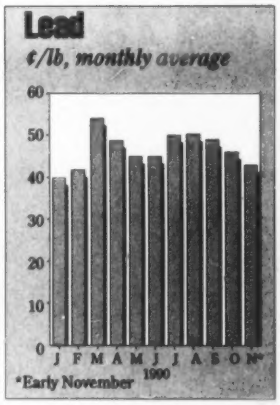
Plastic process machinery growing

The Freedonia Group, Cleveland, expects plastics processing machinery shipments to move up 6% annually over the next five years. Their research suggests, however, that imports will remain a major concern. The report also anticipates the transformation of the industry's technology, which in the future will employ more enhanced control systems to monitor production variables and perform diagnostic checks, approaching zero-defect manufacturing.

Within the industry, machinery shipments for injection molding, already the market's largest segment, are forecast to be the strongest area of growth, advancing nearly 7% annually over the next half-decade. Following closely behind will be machinery demands for extrusion, blow-molding, thermoforming and compression molding, where per-year shipments are forecast to move up 5.3%, 4.7%, 5.9% and 4.8% through 1994, respectively.

No seasonal firming for lead

Traditionally, the fall is associated with a firming of lead prices, but not this year. With lead buyers seemingly relying on inventory, prices are easing, now down near 43¢/lb. The combination of steady growth in demand and still tight supplies hasn't been able to slow the metal's price descent. Stimulating this bearishness is the belief that market supply disruptions will soon be erased, potentially allowing quite a bit of supply to surface in the near future.



East Europe steel facilities lacking

While there is a lot to be said about potential, the challenge facing Eastern Europe to get up to speed in steel production is significant. While Eastern Europe's steel industry performed well during the 1970s, it grew very little in the 1980s, especially with regard to continuous casting (which is essential for high-quality steel production). Last year the United States cast 65% of its steel continuously; Japan cast 93%. East Europe casting looks something like this: Bulgaria 15%; Czechoslovakia 9%; East Germany 41%; Hungary 56%; Poland 77%; Rumania 34%.

Forecasting preview

Next month *PurchasingWorld* will once again deliver its Economic Summit, the most comprehensive forecasting guide in the industry. The latest outlook and policy survey from the National Association of Business Economists (NABE), however, is an excellent preface.

Data expectations: gross national product (GNP) growth has been roughly halved for 1990 from the previous forecast, with the new consensus estimate at a positive 1.2%. The 1991 rate of growth in GNP was also pared, from 2.4% to 1.4%.

In terms of the GNP components, the NAPM's survey participants foresee continued growth in capital and consumer spending, both this year and next. Improvement is also expected in real net exports over the forecast horizon (see chart).

With regard to the civilian unemployment rate, further worsening is anticipated, progressing from an annual average of 5.5% in 1990 to 5.9% in 1991. A rebound in corporate profits, however, is predicted next year, which should work to lower unemployment numbers in the second half of 1991.

Good news is signaled in the inflation numbers. While the oil shock has boosted the consumer price index forecast from 4.7% to 5.8% in 1990, the 1991 level is expected to fall back below 5%. If the Fed maintains its slow-growth approach to monetary policy, and there is no reason to doubt that they will, a persistent, gradual retreat in inflation is possible.

How probable is recession: while 60% of the economists expect a recession to begin within the next 36 months, only 50% believe one will occur within the next 12 months, with the fear of recession concentrated in the fourth quarter of 1990 and the first quarter of 1991. However, both these readings are significantly higher than the previous survey (taken prior to the Middle East crisis).

National Assoc. of Business Economists

Median forecast

	Actual 1989	Forecast 1990	Forecast 1991
Real GNP[1]	2.5%	1.2%	1.4%
Consumer spending[1]	1.9%	1.0%	1.4%
Capital spending[1]	3.9%	0.9%	1.2%
Net exports[1] (bill)	-54.1	-38.0	-31.0
Federal budget deficit[2]	-152.1	-165.0	-171.0
Corporate profits[2]	-4.4%	-2.7%	3.0%
Unemployment rate[3]	5.3%	5.5%	5.9%
Industrial production[3]	2.6%	1.1%	1.6%
Housing starts[3] (mill)	1.4	1.3	1.3
Domestic auto sales[3] (mill)	7.1	6.8	6.9
Consumer price index	4.8%	5.3%	4.9%
GNP deflator	4.1%	4.3%	4.4%
Treasury bill (3 mo)	8.1%	7.6%	7.0%
Treasury bonds (30 yr)	8.4%	8.6%	8.3%

1 = annual averages

2 = nominal magnitudes

3 = real magnitudes

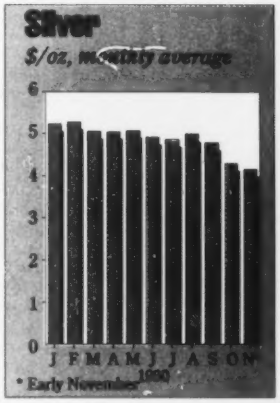
Toyota driving supplier performance

In October's final week, Toyota held its first-ever import suppliers meeting. Roughly 200 representatives from 53 American automotive parts manufacturers were in attendance. The encounter, held in Toyota City, Japan, was designed to expose U.S. manufacturers to Toyota's basic policy on product development and production, and is part of the firm's new "Toyota Step Up Program." The company hopes the program will simultaneously accomplish two things: increase design-in opportunities for foreign suppliers; and drive supplier performance in the area of quality.

Precious metal tabs mixed

The weakness in silver and platinum seems to be influencing gold's price of late. In fact, gold has already eased into the low $370/oz range and some analysts say it might not reach bottom until it hits 360/oz. One trader commented that if the domestic price of silver falls below $4/oz (currently at $4.15/oz), gold might slip even lower. Silver demand for industrial applications is slipping, and fabricators are backing off from inventory accumulation, preferring to let the market act as a warehouse.

The recent rebound in platinum, however, should lend some support to gold.



The easing of recessionary fears and oil prices, along with a spurt of Japanese buying, has stimulated a roughly $40 firming of platinum, to $440/oz. While silver and platinum prices will mostly be tied to global recessionary concerns, the future price of gold should remain heavily dependent upon worldwide inflation levels and Middle East expectations.

IBM not the same overseas

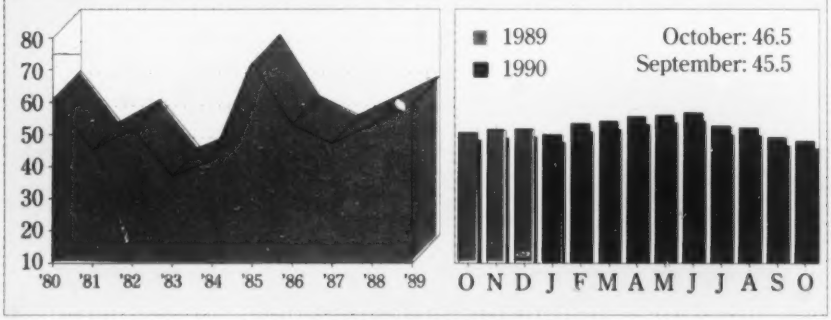
In the U.S., IBM Corporation accounts for more than 80% of the mainframe computer market. On the other side of the Atlantic, however, IBM's market share has room for improvement. According to Computer Intelligence, La Jolla, CA, European home-grown computer makers are staying competitive. Europe's mainframe business that IBM controls: Great Britain 68%; Belgium 71%; France 51%; West Germany 56%; Austria 58%; Spain 62%; Switzerland 59%; and Italy 67%.

BUSINESS DATATRAK

By John W. Sheridan, Chief Economic Editor

N. A. P. M. business barometer

Based on five indicators (employment, inventories, new orders, production, vendor performance)



KEY ECONOMIC TRENDS

Solving today's economic mystery

Those predicting recession believe that if it doesn't begin in the third quarter, it most certainly will begin in the fourth quarter. Negative output, as measured by inflation-adjusted gross national product, wasn't observed in the preliminary report of third-quarter data, which was up 1.8% (see chart). Moreover, underlying clues suggest that a classical business recession might not be as imminent, at the present time, as many of my colleagues believe.

Clue 1: offsetting the gloom projected from the consumer attitude surveys, retail sales climbed in September (see chart). No matter how you look at it, consumer spending is still growing, and since spending from consumers accounts for two-thirds of GNP, the drag applied by exports, business investment and government (the components which make up the other third of GNP) would have to be significant to incite a downturn.

Clue 2: after the first-quarter inventory drawdown, the second-quarter build was weaker than anticipated. It is expected that the third quarter will benefit from a further increase in inventory investment. Despite this inventory increase, however, inventory-to-sales (I/S) ratios remain favorable. With less than one-and-a-half months of inventory on hand, the traditional inventory cycle seems remote. Neither the level of stocks nor the pace of inventory investment suggests the need for production cuts, which incite rising unemployment, further aggravating any economic slowdown.

Clue 3: in the first half of 1990, inflation-adjusted nonresidential fixed investment (which includes business structures and equipment) was up almost 2% over the first six months of 1989. Not only is capital spending solid, it should strengthen. Driving investment will be the perpetual quest for productivity improvement, and the concern over market share, which always accompanies tough business conditions.

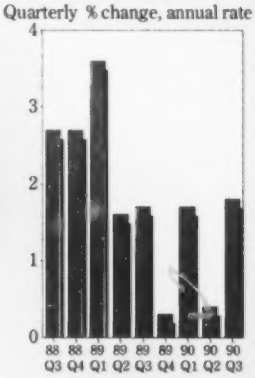
Clue 4: exports will continue to be boosted by strong demand growth from our major trading partners and the still-weakening value of the dollar *versus* foreign currencies (see chart). The full effects of a falling dollar are felt with a lag of 3-12 months, implying that next year's net export picture is bright.

Clue 5: speculating that cutbacks in auto produc-

Leading Indicators

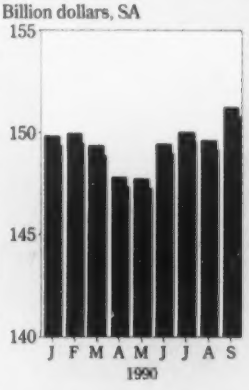
Real GNP

Quarterly % change, annual rate



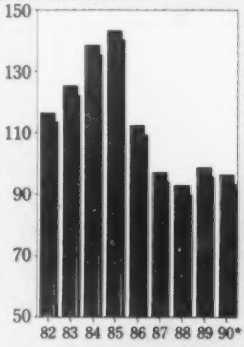
Retail sales

Billion dollars, SA



Trade weighted dollar

Index 1973=100

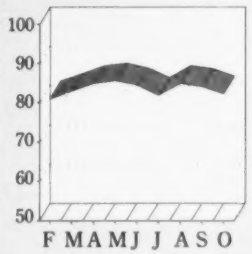


*Recent

Source: Dept. of Commerce, BEA; Board of Governors.

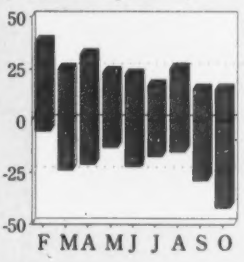
Steel

Operating rates

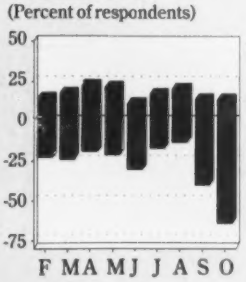


Inventories
(months supply on hand)

Demand (Steel Service Centers)
(Percent of respondents)



Demand (NAPM)
(Percent of respondents)



Source: Steel Service Center Institute
NAPM Steel Buyers Committee

tion will be strong enough to create a mild recession in the industrial sector seems in error. While auto sales are still disappointing, they aren't as low as the recession-induced numbers of 1982, when domestic car sales registered 5.8 million for the year. September's seasonally adjusted annual rate of domestic car sales totaled 7.6 million, only slightly below the 7.8 million rate of September 1989. Moreover, industrial production figures for July and August have been revised up and now show gains, while industrial production in September came in at up 0.3%.

The Christmas season will reveal the final clue for the near-term performance of the economy. If consumer spending holds up, the longest peacetime expansion could reach its 107th month of growth next October, which would establish a new expansion record.

METALS SCENE

Awaiting deterioration

The Steel Service Center Institute (SSCI), Cleveland, reports that September's average daily shipping rate (ADSR) climbed 8.9% over August's active level. Supporting the advance were strong performances by alloy products, up 12.8%, carbon bars, up 11.9% and carbon tubing, which rose 11.8% for the month.

September's solid performance put the finishing touch on a good third quarter for service centers. While the ADSR in the third quarter was down almost 4% from the level witnessed during the second quarter of this year, on a year-ago basis, the third-quarter figure is up 1.3%.

Raising buyer concern, though, is September's surge in the service centers' inventory-to-shipments (I/S) ratio, which climbed to 3.60. August shipments, however, which incited a plunge in the I/S ratio to the lowest level of the year (3.04), provide at least a partial explanation. As Andrew G. Sharkey, SSCI president, pointed out, "The inventory build may be due in part to spot buying to fill inventory gaps that resulted from an unusually strong August shipping month." Moreover, Mr. Sharkey believes that "inventories remain in balance with current shipping levels."

In spite of September's strong showing from service centers, optimism about the near-term performance of steel is deteriorating. In the SSCI's latest survey, 53% expect fourth quarter economic activity to decline. Even more pessimistic are respondents of the National Association of Purchasing Management's Steel Committee, where 64% expect general economic activity in the fourth quarter to fall off.

The news isn't any better when one asks industry analysts about their prognosis. Most concur with the perceptions of those actively engaged in the market: beginning in the fourth quarter, steel performance will weaken.

Many thought the uncertainty brought about by the Middle East would stall industrial activity, and with it steel production, but thus far, global activity hasn't plunged. How much longer output from Japan and the U.S. can continue to support figures on world steel activity, however, remains to be seen. The as-of-yet-not-so-obvious deterioration in the U.S. is clearly present in other parts of the world: Belgium, Germany, France, Australia, the United Kingdom and Eastern Europe. In Canada, half of that country's steelmaking capacity has been idle since August, due to strikes at Stelco and Algoma.

Returning to the domestic front, steelmakers are seeking to push prices up roughly 5% in the fourth quarter, but demand fundamentals suggest the recent price push will subside quickly.

Import prices
(Compared to domestic)

STEEL BUYERS
ABOVE 21%
SAME 28%
SLIGHTLY BELOW 48%
SUBSTANTIALLY BELOW 3%
SERVICE CENTERS (CARBON)
ABOVE 5%
SAME 71%
5-10% BELOW 22%
11-20% BELOW 2%
OVER 20% BELOW 0%

REGIONAL PERSPECTIVE

City growth raises concern

Alphametrics Corporation has just released its second-quarter performance report on the 75 largest metropolitan areas nationwide. Their economic performance index for cities (EPIC) shows the same general slowing which was observed at the national level in the second quarter, as reported in the gross national product (GNP) figure (which was up 0.4%).

The effects of inventory rebuilding and a short-lived spring burst in manufacturing were clearly visible in the latest EPIC results. In terms of quarter-to-quarter improvement, large Ohio cities led the way. In fact, six of the top 12 performing metropolitan areas were located in Ohio: Cleveland, Columbus, Cincinnati, Dayton, Youngstown and Toledo. Interestingly, Cincinnati and Columbus are two of only 29 cities to have actually added manufacturing jobs since the summer of 1989. And, while manufacturing job growth has remained flat in Cleveland, overall employment has advanced 3% in the past year, signaling that city's renewed vitality.

The data compiled by the Bala Cynwyd, PA, researchers, also indicates that an oil patch revival was in progress prior to the Iraqi-induced soaring of oil prices. Oklahoma City and Tulsa were both in the top ten in second-quarter performance, while the Texas cities improved from the bottom third to the middle third, in terms of their EPIC ratings.

In the southeast, Charleston is living proof that natural disasters are good for future economic performance. The rebuilding required from last fall's hurricane has boosted Charleston's EPIC rating to fourth on a year-over-year basis, which is significantly higher than its 1989 position of 54th. Florida, with Miami, Orlando, Tampa and West Palm Beach leading the charge, is performing well, due to growth in the transportation, finance and service industries.

Western performance continues to be, regionally speaking, the best, with many cities there continuing to add people and jobs. Mr. Charles Renfro, Alphametrics' chief economist, commented, "No western cities are to be found in the bottom 25. Furthermore, seven of the top nine fastest growing cities over the past two years are in the West."

Clearly associated with economic performance is the ability to generate new jobs. Since the summer of 1989, the country's top eight cities for job growth: Las Vegas, Fresno, Seattle, Salt Lake City, Sacramento, Portland, Honolulu and Phoenix.

Through the second quarter, northeastern and mid-Atlantic cities had yet to reach their trough. While the Washington and Baltimore economies displayed slowing, conditions in Philadelphia, Hartford and New York, which are barely positive on a year-over-year basis, turned decidedly worse during the second quarter. Pockets of strength inland, at Rochester, Harrisburg and Albany, however, persist.

While 56 of the 75 largest cities in the U.S. experienced worsening performance in the second quarter, as measured by the EPIC system, only nine of the 75 possess a negative EPIC rating on a year-over-year basis. Are the second-quarter numbers a signal of recession? Probably not. The second quarter performance was almost a mirror of the first quarter, when 58 cities showed some positive growth. The best guess is that the second quarter was simply a transitional quarter with respect to a large number of resources. Within the framework of a slow-growth national environment, such periods of reallocating resources should not induce panic, only awareness.

Top 15 growth cities
Percent change, second quarter

Youngstown, OH	7.43
Toledo, OH	6.02
Charleston, SC	3.74
Columbus, OH	2.70
Fresno, CA	2.01
Cleveland, OH	1.93
Tulsa, OK	1.84
Dayton, OH	1.64
Portland, OR	1.40
Oklahoma City, OK	1.11
Miami, FL	1.07
Cincinnati, OH	1.07
Salt Lake City, UT	0.93
Orlando, FL	0.83
Honolulu, HI	0.81

Cities of interest
percent change, last 12 months

Atlanta, GA	3.21
Phoenix, AZ	3.08
Kansas City, MO	3.02
Cleveland, OH	2.78
San Francisco, CA	2.41
Milwaukee, WI	2.31
Denver, CO	2.00
Minneapolis, MN	1.96
Birmingham, AL	1.63
Dallas, TX	1.32
Richmond, VA	1.22
Chicago, IL	1.00
Hartford, CT	0.51
Detroit, MI	-1.00
Boston, MA	-2.20

CURRENT PRICES

Energy spillover

The inflation indexes are simply confirming the obvious: energy costs continue to soar. Skyrocketing fuel prices have now pushed the consumer price index above 6% on a year-over-year basis, which is up significantly from 1989's 4.7% level and the weakening levels witnessed just prior to Iraq's August 2 invasion of Kuwait. With respect to producer prices, that index is also near 6% on an annual basis, nearly three times the level observed for the first six months of 1990.

Worse yet, each day the Middle East commotion persists, the spillover effects from energy's impact on production, packaging and distribution get magnified. Fortunately, most of the price pressures to date have remained concentrated in the energy and energy-intensive industries (chemicals and plastics). But, as the Middle East and oil situations boost prices, they are also discouraging industrial activity.

It is clear that we are now engaged in a significant, though temporary, energy inflation. In contrast, no sustainable *non*-energy inflation is surfacing. In fact, most industrial commodity price outlooks, excluding energy, have been little altered from their pre-invasion levels.

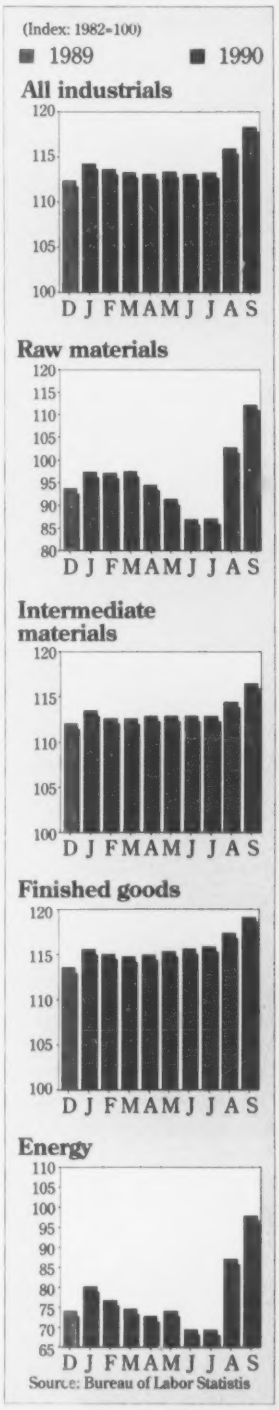
Finally, recently released data from the U.S. Department of Energy shows that between July 30 and October 15, average gasoline prices, excluding taxes, rose by 46-58 cents per gallon in western European countries, 71 cents per gallon in Japan, and 27 cents per gallon here at home. Interestingly, this rise in U.S. retail gasoline was roughly 30 cents a gallon less than the rise in crude oil prices during the same period.

This month's breakdown

Index 1982=100

	Latest level	Month ago	Year ago
Bearings	130.7	-0.2	4.2
Bolts, nuts, etc.	117.5	0.0	2.5
Chemicals, inorganic	112.3	-0.1	2.2
Chemicals, organic	115.3	5.5	2.6
Concrete products	114.0	0.3	2.2
Corrugated containers	107.7	-0.2	-4.7
Cutting tools, small	113.1	0.0	1.2
Electrical lamps (bulbs)	130.7	0.0	4.4
Electronic components	117.4	-0.3	-1.7
Fans and blowers	124.2	0.3	3.7
Foundry and forge products	117.5	0.2	2.0
Fuel oil (residual)	59.3	30.6	26.7
Furniture, commercial	133.7	0.1	2.2
Gasoline	92.4	12.5	42.4
Glass, flat	106.8	-0.6	-2.1
Glass containers	120.9	0.2	4.5
Gypsum products	103.1	0.6	-5.3
Hand tools	135.2	0.0	5.1
Hand tools, power driven	121.6	0.1	3.9
Industrial furnaces	127.8	0.4	2.2
Integrating and measuring instruments	127.3	0.3	5.7
Internal combustion engines	121.4	0.0	4.7
Lubricating oil	117.9	1.9	5.3
Lumber millwork	130.5	0.2	2.0
Material handling equipment	115.8	0.3	2.7
Metal containers	114.2	-0.1	1.8
Metal mill shapes	132.0	-0.3	-3.7
Metal tanks	114.0	-0.3	2.3
Metalworking machines	123.3	0.2	3.6
Motors and generators	133.2	-0.4	2.7
Motor trucks	123.6	-3.3	0.6
Nonferrous metals	139.1	1.6	-0.3
Office and store equipment	108.7	-0.1	-1.1
Paperboard	133.1	-0.2	-4.7
Paper boxes and shipping containers	129.3	0.0	-1.3
Paper office supplies	121.4	0.0	-0.7
Paint	125.4	0.1	3.9
Plastic resins	123.6	1.1	-2.0
Precision measuring tools	128.8	0.0	2.8
Pumps and compressors	120.1	0.3	2.7
Refactories	122.9	-0.1	2.9
Rubber belts and belting	118.8	0.0	2.8
Scales and balances	109.4	0.3	2.4
Switch gear	125.3	0.6	4.9
Textiles, synthetic fibers	107.3	0.8	1.3
Textiles, gray fabrics	117.2	-0.2	1.2
Tires and tubes	97.1	0.6	-0.2
Transformers and power regulations	120.8	-0.2	1.9
Welding equipment	128.7	0.7	5.1
Wire and cable	146.3	2.0	-0.4

Industrial prices



Source: Bureau of Labor Statistis

PROCUREMENT

Purchasers see economy slowing

The Purchasing Manager's Index (PMI) has now been in a state of decline for four consecutive months. Worse yet, its October reading of 43.3 was the lowest since December, 1982, when the leading index resided at 42.8. While a reading below 50 traditionally signals decline in the manufacturing economy, October's level is also below 44, indicating recessionary conditions for the economy overall. A PMI reading of below 44 for the remainder of the year would suggest a decline in real gross national product (GNP) for the fourth quarter, with that figure slowing to about 1% for the year overall. Chairman of the National Association of Purchasing Management's Business Survey Committee, Robert J. Bretz, commented, "With new orders the weakest in eight years, immediate relief does not appear likely."

Though new export orders continued to advance in October, production declined for the third consecutive month, new orders showed decline for the fourth consecutive release, employment stood below 50 for the 20th consecutive month, and the Price Index rose to 76.4, its highest level in more than two years.

While the nation's purchasing managers feel the current price runup is nearly 100% attributable to the Middle East commotion, many also feel that some suppliers are using uncertainties from the Gulf to exploit buyers, increasing prices even when costs to date can't justify such actions. The list of commodities reported up in price jumped from 40 in September to 47 in October.

Inventories continue to be a source of good news, as stocks decreased for the 23rd consecutive month in October, though they did so at a slower rate than in September.

Fleet trends

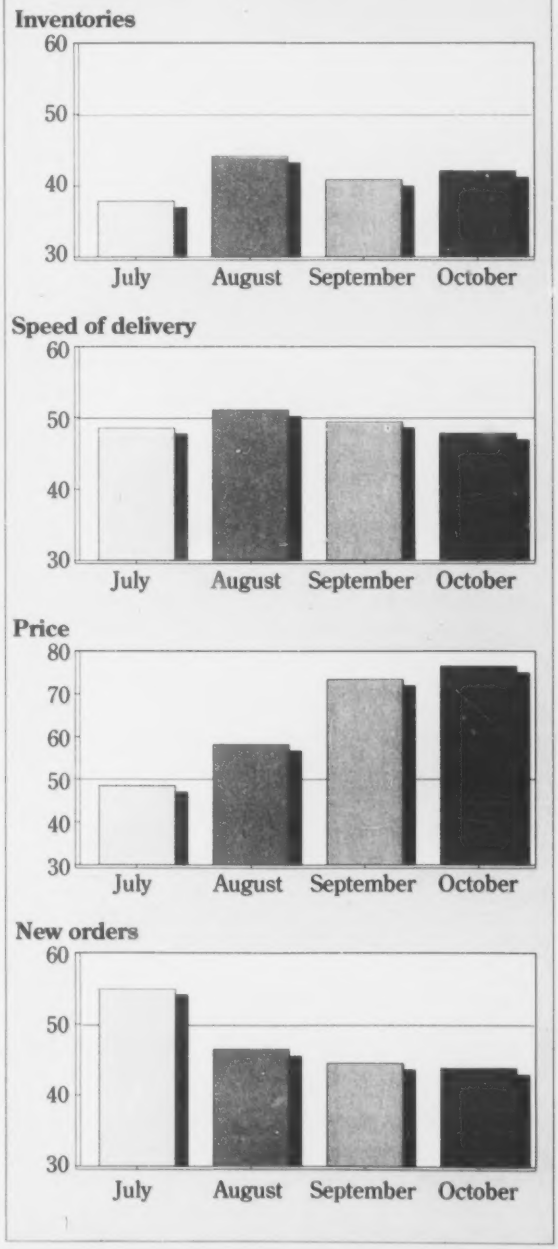
The transition in fleet policies continues, according to Runzheimer International. The Rochester, WI, organization reports that downsizing of staff and cost-reduction concerns are the leading reasons firms reduce their number of company-owned vehicles. Another leading cause, however, is the changing perception as to who should actually be driving these cars.

According to Runzheimer's latest survey, firms are continuing to move away from company cars as a perk, with operational concerns (sales) the leading area of growth. In 1989, 85% of the survey respondents provided vehi-

NAPM procurement trends

(Seasonally adjusted diffusion indexes)

An index where 50 is defined as the neutral level, to the extent a reading is above 50, it represents an expansionary tendency. More particularly, rising inventory prices, and new orders are seen as positive signs of economic growth. A trend towards lower deliveries is similarly interpreted.



cles to sales representatives, which was up from a 79% reading in 1983. This is the mirror situation facing middle-level managers, where only 50% in 1989 received a company car (a decline of 10% from 1983). Even top-level executives haven't been immune. The percentage there is 12% lower than it was just seven years ago.

Fleet managers maintain that cost efficiency is their number one goal. Costs, however, aren't the all-encompassing consideration you might think in selecting a lessor. A large majority of the respondents said they would not compromise service quality in order to save on up-front costs.

No near-term plateauing of higher-trending costs seems likely. Fuel and maintenance expenses keep pushing operating costs higher. On the fixed side, while expenses in the areas of insurance, registration, tax, and depreciation keep stimulating greater costs, new car prices remain the most forceful impetus.

Last year's industry comparisons, in terms of the percentage of respondents involved in fleet leasing, revealed the following: 88% drug and cosmetics, 61% industrial product manufacturers, 61% food and beverage, 59% consumer product manufacturers, 55% chemical & petroleum, 52% insurance, 37% financial institutions, 37% construction and agriculture, and 24% publishing.

LATEST SPOT MARKET PRICES

	Latest price	Previous month	Year ago
FERROUS METALS			
Steel, bars, stainless, 303, cwt	188.00	190.00	179.00
Steel, bars, HR carbon, 1000 series, cwt	19.20	19.20	21.00
Steel, bars, HR carbon alloy, cwt	25.00	25.00	24.50
Steel, bars, CF carbon 12L14, cwt	34.00	34.00	34.50
Steel, plates, carbon, cwt	24.25	23.25	25.20
Steel, plates, strip mill, cwt	23.60	23.60	23.60
Steel, plates, alloy, cwt	34.05	34.05	34.55
Steel, sheets, C.R., class 1, cwt	30.65	30.65	29.65
Steel, sheets, HR, cwt	23.00	23.00	22.25
Steel, sheets, stainless, 304, cwt	124.00	124.00	124.00
Steel, strip, HR carbon, cwt	22.10	22.10	22.10
Steel, strip, CR carbon, cwt	36.18	36.18	38.30
NONFERROUS METALS			
Aluminum, unalloyed ingot, lb	0.80	0.84	0.82
Aluminum, alloyed ingot, 355, lb	1.10	1.10	0.95
Aluminum, secondary ingot, 380, 30000 lb lot	0.75	0.81	0.73
Antimony, lb, merchant	0.88	0.85	0.95
Cadmium, N.Y., dealer, lb	2.20	2.60	4.60
Copper, electrolytic wire bars, lb	1.29	1.42	1.19
Copper, cathode, full plate, lb	1.21	1.31	1.10
Gold, N.Y., troy oz	379.50	389.40	402.90
Lead, common, N.Y., lb	0.41	0.47	0.42
Magnesium, pig ingot, (99.8%), lb	1.63	1.63	1.63
Mercury, 50 fl. lots, N.Y., fl.	205.00	240.00	270.00
Molybdenum, oxide, canned, lb	3.35	3.35	3.32
Nickel, cathode, dealer, lb	3.98	4.20	5.85
Platinum, dealer, oz	429.00	441.00	494.00
Silver, N.Y., troy oz	4.20	4.73	5.20
Tin, N.Y., dealer, lb	2.97	2.75	4.38
Zinc, high grade, lb	0.65	0.73	0.82
Zinc, die casting alloy, No. 3, lb	0.78	0.81	0.74
PAPER (unit=ton)			
Uncoated book #3 offset	940.00	940.00	940.00
Uncoated bond #4, 83 bright	900.00	940.00	900.00
Watermarked bond, 20 lb sheets	1090.00	1090.00	1095.00
Unbleached kraft paper, grocery bag, 30 lb	660.00	630.00	660.00
Bleached kraft, grocery bag, 30 lb	800.00	800.00	800.00
Solid bleached kraft paperboard, folding	830.00	830.00	830.00
Kraft linerboard, 42 lb, domestic, East	370.00	370.00	410.00
Newsprint, 30 lb, East	565.00	565.00	540.00
TEXTILES (unit=lb)			
Acrylic, open-end spun, 1/18	1.50	1.43	1.50
Carded cotton, ring-spun, 18/1	1.58	1.58	1.61
Carded cotton, open-end spun, 18/1	1.43	1.46	1.40
Combed cotton, ring-spun, 100%, 18/1	1.75	1.83	1.85
Nylon, textured, 70/2	2.70	2.70	2.45
Polyester, 50/50% carded cotton, 30/1	1.89	1.73	1.87
Polyester, ring-spun, 100%, 18/1, unbranded	1.53	1.50	1.60
Rayon, high-wet modulus	1.48	1.36	1.34
CHEMICALS			
Acrylonitrile, tanks, lb	0.35	0.35	0.40
Ammonia, anhydrous, tankcars, ton	115.00	100.00	123.00
Benzene, gal	2.15	1.70	1.50
Caustic soda, metric ton	355.00	355.00	320.00
Cresylic acid (over 25%), tanks, lb	0.60	0.55	0.55
Formaldehyde, 37%, (12%-15% meth.),, tanks, lb	0.14	0.14	0.11
Glycerine, synthetic, 96%, tanks, lb	0.76	0.74	0.79
Methanol, syn., barges, Gulf Coast, gal	0.41	0.35	0.50
Naphthalene, crude, tanks, lb	0.17	0.17	0.16
Phthalic anhydride, molten, tanks, lb	0.54	0.39	0.41
Polyethylene resin, low density, lb	0.48	0.40	0.52
Polypropylene, homo-injection, lb	0.46	0.45	0.51
Polystyrene, general purpose grade, lb	0.61	0.56	0.59
Polyvinyl chloride, pipe grade, lb	0.36	0.36	0.44
Soda ash, light 58%, 100 lb, paper bags	155.00	150.00	135.00
Styrene monomer, 99.6%, tanks, lb	0.45	0.43	0.49
Sulfur, dark, Tampa, FL, long-ton	140.00	134.00	142.00
Sulfuric acid, 66%, commercial, tanks, ton	69.89	69.89	66.86
Titanium dioxide, anatase, reg., carlots lb	0.99	1.02	0.95
Xylene, Gulf Coast, spot, barge, gal	1.51	1.50	0.95
BUILDING MATERIALS			
Lumber, 2x4 fir, mbf, cl	337.24	341.33	345.63
Lumber 2x4 pine, mbf, cl	329.35	337.06	321.47
Plyform, 3/4", msf, cl	609.81	645.91	570.00
Plywood, 5/8", msf, cl	365.49	375.20	360.21
Cement, type 1, bulk, ton	62.44	63.22	63.88
Sand, concrete, ton, cl	6.86	6.88	7.17
Ready-mix concrete, 3000 psi/cu. yd.	49.43	49.28	48.81
Crushed stone, base course, ton, cl	6.13	6.29	5.84
Concrete blocks, sand/gravel, 8"x8"x16", per hundred	84.58	84.64	87.17
Reinforcing bars, grade 60; per cwt.	21.96	22.01	22.10
Asphalt paving AC-20, ton	112.07	107.32	108.53
Concrete sewer pipe, 24", per ft, cl	17.94	17.88	18.00
FUELS			
Crude oil (W. TX Int.), bbl	35.50	35.50	20.40
Diesel (reseller rack, Chi.), gal	0.95	0.93	0.51
Heating oil No. 2 (N.Y.), gal, spot	0.90	0.95	0.56
Heating oil No. 2 (Gulf spot), gal, spot	0.89	0.93	0.48
Fuel oil No. 6 (N.Y.), tank car contract	26.90	23.00	18.75
Gasoline (prem unlded N.Y.), gal, spot	1.02	0.99	0.78
Gasoline (reg unlded N.Y.), gal, spot	1.01	0.93	0.59
Kerosene (reseller rack, Chi.), gal	1.07	1.02	0.60
SCRAP MATERIALS			
Aluminum, old sheet & cast, cl	0.45	0.50	0.43
Aluminum, mixed clips, cl	0.52	0.55	0.50
Brass, yellow solids, cl	0.60	0.64	0.57
Copper, No. 1, brass ingot makers', cl	1.01	1.07	0.93
Copper, No. 2, brass ingot makers', cl	0.91	0.95	0.84
Steel, no. 1, hvy., dlvd., Pitts., ton	109.00	113.00	99.00
Steel, no. 1, hvy., dlvd., Chi., ton	112.00	112.00	108.00
Zinc, old, smelters scrap, cl	0.30	0.30	0.35
Zinc, die cast slab, smelters scrap, cl	0.36	0.36	0.37

Sources: Metals Week, American Metal Market, Engineering News-Record (20-city averages), America's Textiles International, Journal of Commerce, Chemical Marketing Reporter, Pulp and Paper Week.

* This page has been revised to better serve you.

Purchasing salaries throw some curves

This year, *PurchasingWorld*'s annual salary survey produced some surprizes: for example, average raises for our respondents came in at 5.25%, better than the cost of living. Salary numbers made swings, and in some job categories were *lower* than our December, 1989 survey showed. Those swings seemed odd, in light of the reported raise percentage. That 5.25 raise average is in line with expectations—until recently—and matches what we've found in followup phone interviews with purchasing experts around the country.

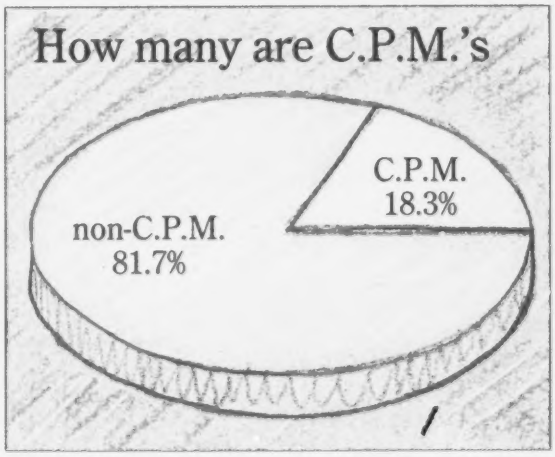
To understand the variations, we sought the counsel of cooler heads—and those better acquainted with statistical shortcomings—our chief economic editor, John Sheridan, and resident research guru, Peter Young.

The answers were actually simple: there is always the plus-or-minus factor in statistics, known as the standard deviation or "confidence factor." And our survey results fall within that range.

There is also the possibility that many lower-salaried people have been brought into the category, or there are fewer *highly* paid people in it. Looking through the overall survey report, it appears that the former is the case—there were a number of surprisingly low salaries reported.

Then we have to try to understand why that is. Is purchasing as a function going through a weeding-out phase? In a sense, that would parallel many businesses' experience today. Call it streamlining or selective retention or whatever, lean and mean is the watchword of today. Businesses ask themselves, "How can we do more with less (or with fewer people)?"

A recent *PurchasingWorld* postcard survey gave strong indications that purchasing departments *are* being downsized around the country.



There's always a silver lining, of course: this means that there is some room being created for *entry-level* people in purchasing. And to add further encouragement to those looking at a career in purchasing, see Editorial Consultant Paul Farell's story ("Old pro pitches purchasing") in this issue.

That's what seems to be happening here. And reflecting the slow-growth business conditions, the reporting of bonuses in the 1990 survey is down—and in many cases, bonuses just aren't being given. (After the question on bonuses, a few respondents wrote "Hah!" or similar comments.)

Before we check the survey results, here is a brief look at the methodology *PurchasingWorld* employs. We send questionnaires on an *nth* name basis to our A list of subscribers—those with job titles in the executive category. The percentage of respondents in 1990, while down slightly from last year, was still quite good for a mail survey.

Let's look at the numbers

Junior buyers this year reported average raises of 4.8%, with the resulting salaries averaging $20,895. This compares with last year's $21,000 salary and a *12%* raise. Bonuses in this category were negligible, as can be expected in entry-level positions.

Buyers comprise one of our largest categories, and are therefore a matter of some concern, with an average reported salary in 1990 of $29,900 and average raises of 4.6%. Last year the number was $37,640, and while the standard deviation allows for such a variation, there's too great a swing here not to raise some eyebrows. Bonuses in this category, as in all others, were substantially lower, at an average of $1,373. (Last year's bonus figure was $7,000.) A closer look shows this category, as mentioned above, weighted by newer workers and lower salaries.

Senior buyers came in at $38,704 in average salary, with a 4.2% raise over the previous year. Here there is no adequate comparison to last year, when only one respondent placed himself in this category. Although it simplified tabulation, he was making $60,000 as the result of a 7% raise—hardly a benchmark for study.

Purchasing managers tallied a minuscule loss, to $45,260, from 1989's $46,621. Raises this year were down, too, with 6.4% for 1990 comparing with the year-ago 7%. Bonuses averaged just under $2,000—at $1,986—compared with 1989's $6,600.

Directors of purchasing salaries averaged $61,726 in 1990, compared

by Ron Stevens, managing editor

with $57,393 in 1989. Raises this year increased an average of 5.85%, slightly below last year's 6.2%. Interestingly, if last year's average salary gets this year's average raise, the resulting number is $60,951—a good cross check.

Vice presidents of purchasing reported average raises of 4.2% (compared with last year's 8.1%) and an average salary of $74,252. 1989's number was substantially less, at $61,091, although bonuses went from $16,500 last year to $10,902 in 1990. Total compensation, then—on average—didn't increase as much as it might at first seem.

Materials managers' salaries went higher, too, from an average $46,574 in 1989 to $53,063 in 1990. Average increases went from 6.4% last year to 4.75% this year. Bonuses dropped, too, from an average of $10,600 to $3,980.

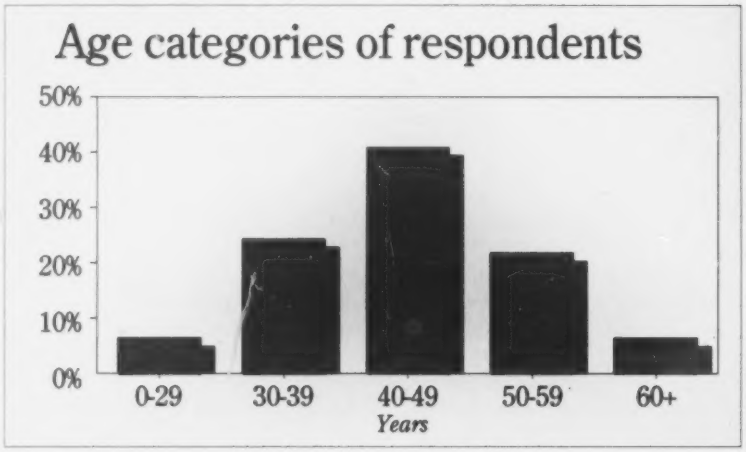
Directors of materials reported an average salary of $62,223 in 1990, virtually unchanged from 1989's $62,852. The average raise was 6.25% this year, compared with 6.8% last year.

Women in the survey

The top salary reported in this year's survey was $165,000, by a 36-year-old woman who identified herself as a "commercial director." Although she got no bonus, she still carried away top compensation honors.

As far as women in general are concerned, 18.2% of our respondents were females and, as you could guess they are, on average, not as well paid as their male counterparts. In the job categories where they showed up in appreciable numbers, their salaries were almost without exception at or below the category average. Bonuses were reported as being about equal, however, showing that there is at least *some* area where equality prevails.

In overall numbers, women had an average salary of $32,740 in the 1990 survey; last year the figure was substantially higher, at $44,837, with the high already mentioned and the low at $13,800. That year-to-year average difference could be explained, in part, by the fact that only 8% of the 1989 respondents were women. And by comparison to women's salaries, men responding to this year's survey averaged $51,361, with a high of $145,000 and a low of $16,800.

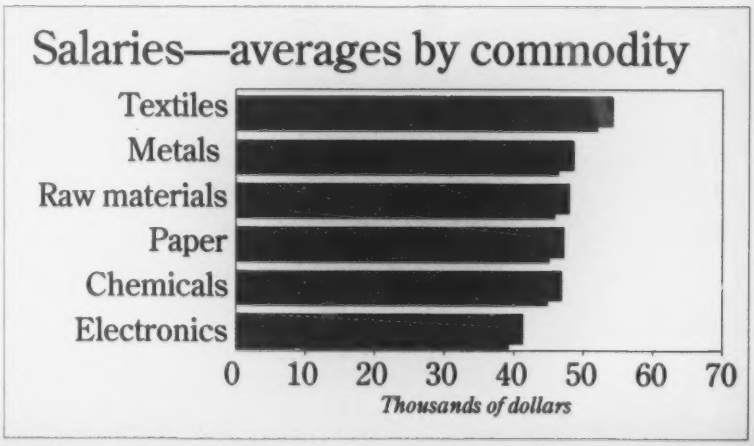


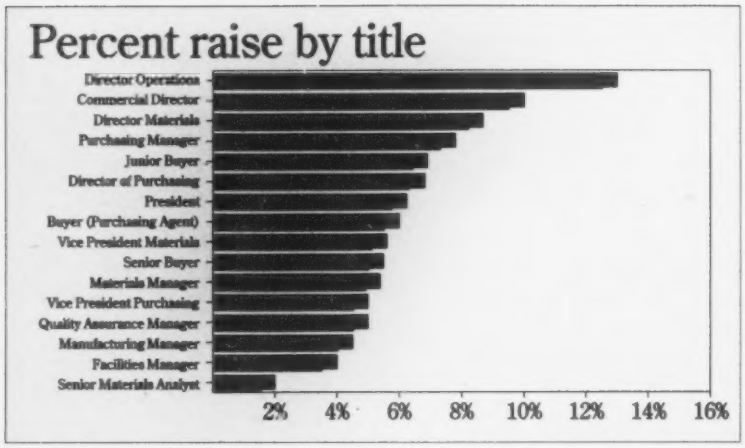
Turning to another minority, certified purchasing managers (C.P.M.s), our survey responses indicate that they are in almost the exact same proportion as women—18.3% of the total. An interesting sidelight of our research was that C.P.M.s were clustered tightly in the age range from 37-50—63%, with a thin spreading of certified people above 50, and the larger remainder in their early 30s.

The salary difference for C.P.M.s was one worth noting, for those purchasing pros who are in the process of earning certification—or are thinking of doing so: the average salary for C.P.M.s responding to our survey was $52,850; for those without that professional credential, the average salary was $47,065.

In the same vein, another area worth noting is the result of cross-tabulating education levels and salaries. The average salary for high school graduates (17% of respondents) was reported by our respondents as $35,540. Keep in mind that many of these responses are from people who have many years' experience in purchasing. The top salary here was $73,500.

Respondents with two-year degrees (16.8%) reported an average salary of $41,107; top salary was





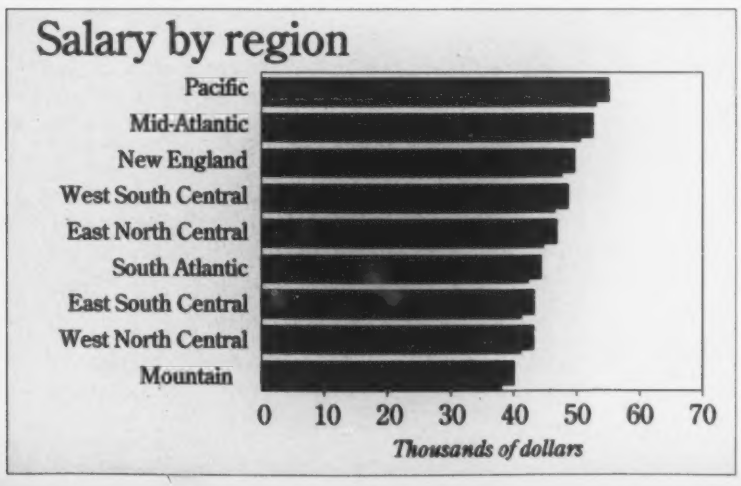
$105,000. Liberal arts graduates brought in an average of $44,109 (they comprised 10.3%), and their top salary was $87,000.

The largest response in the education category came from business-degreed respondents (almost 30%), who earn an average $50,762, with a high of $125,000. Other undergraduate degrees (9.2%, which included electrical and other engineers) earn on average $53,834, from a high of $98,000. MBAs (11.2% of respondents), with a top figure of $130,000, averaged $63,506, and other graduate degrees (nearly 5%) reported an average salary of $64,675. The top salary reported is a graduate degree holder in a non-business discipline, by the way.

The average age of all respondents was 44.4; average high salary was $72,000, and average low was $22,000.

Just over half of the respondents were located at their company's corporate headquarters, 25.7% were divisional employees, and 23% held jobs at plant locations. (In the case of respondents from some smaller companies, corporate and plant locations were the same; our tallying method was to simply count those as corporate responses.)

The good news is that raises were common and averaged more than the cost of living. The not-so-good news is the thinning out of top salaried jobs. Next year—and even 1992—should tell us all whether this is a trend or a statistical hiccup. ***PW***



Continued from pg. 30

list in its office which is made available to recruiters. A positions available list is sent to members who are actively looking for a new position and who have a resume on file in the office. Recruiters fax or mail their job listings to the office.

Contact: Chris Loup, PMA of Boston, 747 Main St., Concord, MA 01742; tel: (508)371-2522

Carolinas/Virginia

The PMA of Carolinas/Virginia, the second largest affiliate after Boston, offers a no-fee service for members. Duplicates of resumes are sent to personnel recruiters and companies looking for qualified purchasing professionals. A cover letter is requested as well as information about location and salary range desired, education and commodity experience. Begun within the last year, the service currently numbers about 100 resumes on file.

Contact: Betty Hempstead, PMA of Carolinas/Virginia, P.O. Drawer V-2, Greensboro, NC 27402

Orange County, CA

N.A.P.M. Orange County Inc. has offered a resume listing and positions available listing service for a number of years. Recently, it began building a computerized database of resumes which will be helpful because it will tend to surface location and salary matches.

Orange County publishes listings in its newsletter every month and picks up some positions-available listings throughout California from national through N.A.P.M. Services. According to Chuck Ayres, the Orange County PMA encourages an open door policy with search firms under strict terms of confidentiality and will even work with non-members in their job search. "After all," says Mr. Ayres, "many of them will become good members if we help them along on their career path."

Contact: Chuck Ayres, N.A.P.M. Orange County Inc., 1403 North Batavia St., Orange, CA 92667-3504; tel: (714) 532-0170 ***PW***

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A HUEBCORE PUBLICATION

PurchasingWorld®

MANAGING THE BUSINESS OF BUYING

JANUARY 1991

CONFIDENTIAL

1991 FORECAST

The Economic Summit

Macro overview
*
Price expectations
*
Industry projections
*
Econometric models
*
International arena

Robert Brown, Jr.
DRI/McGraw-Hill

John Silvia
Kemper Financial Services

Evan Barrington
General Electric

Christopher Caton
Dept. of Prime Minister, Australia

Joseph Gross
LTV Steel

Adrian Dillon
Eaton Corp.

MRO buying

Beaudet on business issues

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PurchasingWorld

Welcome — Gene

You and I are in for a treat each and every month. Starting with this issue, Gene Beaudet will bring his unique perspective to bear on the issues facing us, our companies, and the purchasing profession each and every business day.

Gene's column—*The Business Issues*—is the hallmark of a career that has spanned 40 years and earned recognition from government, industry, and his publishing peers.

It is not an exaggeration to call Gene the dean of U.S. business journalists. He has been honored with the prestigious C.D. Crain Jr. Award given annually since 1967 to an individual for a lifetime achievement in the business press by the American Business Press.

Throughout his career, Gene has brought an uncommon ability to see through the gobbledygook of government bureaucracy as it attempts to stifle our free enterprise system. He has stood by his principles and communicated them clearly and forcefully on every topic of importance to U.S. manufacturing companies. For this he has received the Flick-Reedy Americanism Award and had his writings reprinted in the Congressional Record.

Gene looks back with some pride to the days on Iron Age magazine where he provided editorial leadership that earned six coveted Jesse H. Neal Awards for editorial excellence and countless other awards.

One association from his long tenure as editor-in-chief of Iron Age is being renewed with his joining PurchasingWorld magazine. Gene says it best:

"I've known and worked with HUEBCORE Communications' President Tom Corcoran for more years than either of us may care to admit—although, for me, every day I stay on the green side of the sod I count as a plus."

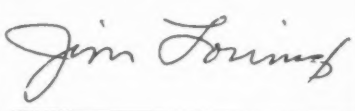
You'll find more than a little of that kind of wry humor in Gene's column. It's his style—one that subtly persuades us that his ideas are indeed important and worthy of serious consideration.

To many, Gene Beaudet represents the best that our tough, competitive publishing industry has to offer. You'll find that his views are refreshing, plain-speaking, and action oriented.

But they are always cloaked in the wit and wisdom of experience. If titles of some of his columns from the past are any indication of what we can expect, I'm sure we'll have a lot to think about and chuckle over. Here are a few gems: "A One-Way Ticket to Palookaville," "A Country of Hairdressers and Repairmen?" "Is the Flesh Willing But The Spirit Weak?" "The Adversary Complex Has Got to Go," and "Don't Just Do Something, Stand There!"

Tom Corcoran says: "Gene Beaudet is the voice of leadership for the metalworking/manufacturing industries. We couldn't be more pleased than to have him sharing his thoughts with our purchasing pros."

Good writing to you, Gene. Good reading for us.



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PW PREDICTS

The eve of destruction

As we begin the new year, it is unfortunate that the above title can initiate a discussion regarding our soldiers, who stand ready on Saddam Hussein's border, or the recent runup of oil prices, which might push our Fed-induced slow-growth economy into recession. In the long run, however, both of these dilemmas are dwarfed by the magnitude of destruction threatened by our government's loss of fiscal responsibility.

This loss of fiscal responsibility does not center upon the size of our Federal deficit or level of public debt, for these are merely symptoms of a much more dangerous disorder. The federal crisis I speak of deals with government's ever-increasing claim on resources.

While it is oftentimes fashionable for politicians, or those with little training in economics, to claim that any marketplace failure is sufficient reason for initiating remedial government intervention, the recent transformation in Eastern Europe (and the Soviet Union) provides convincing testimony as to why too much government is destructive.

Over two hundred years ago, the founding fathers provided our economic framework in the Constitution, which promoted the limited role of government in a capitalist society. Unfortunately, as democratic nations age, an inherent political bias toward bigger government begins to erode the magic of the free market.

Information costs make the political process very responsive to special interest groups. When politicians respond by providing large benefits to one targeted group, they impose a very small cost on everyone else in the economy. Unfortunately, the sum of the losses often outweighs the sum of the gains, but because the price to each loser is small, rarely is collective action for society's wellbeing undertaken. Aggravating the problem are the log-rolling activities politicians engage in to please their own constituents.

In the past 30 years, these two factors have combined to stimulate an ever-expanding role for government, which it has accomplished in a number of ways: direct purchases (on-budget spending); mandates on economic agents (laws); regulation compliance costs; Federal credit programs; transfer payments; tax expenditures and so on, all the way down to jawboning. Personal research indicates that our government's claim on resources has jumped from roughly 26% in 1970 to nearly 40% in 1990.

While the U.S. economic system is not perfect, it still provides a greater standard of living for its participants than any known alternative. Where there are shortcomings, economic theory would suggest that the cause is too much—rather than too little—government intrusion.

Despite this increase in central intervention, our economy remains subject to fluctuations in business activity which have been traditionally associated with capitalist societies.

Business cycles do not occur at regular time intervals, though they are reoccurring. In addition, the magnitude and duration of expansions and contractions are not the same, with many factors inducing changes from one stage to the other.

Our economy is now facing the very real possibility of moving from expansion into recession. Some analysts suggest that the Federal Reserve's strategy of slow growth has made the economy too weak to absorb the recent runup in oil prices brought about by the commotion in the Middle East. Others maintain that the downturn was inevitable due to excessively restrictive monetary policy, with the economy stagnating itself into recession. Whatever their argument, the number of economists *not* predicting recession dwindles every day.

Appreciating the fact that no single forecast can meet every decision-making situation, this issue of *PurchasingWorld*, in addition to its standard DataTrak and Predicts sections, reviews: the international arena; the econometric models of our country's leading consulting firms; the scenarios Data Resources Incorporated, purchasing experts and industry analysts believe most likely for both the economy and prices in 1991; and the expectations from four of the private sector's leading economists.

An ancient Chinese curse states, "May you live in interesting times." Such times are here. Despite the fact that we are now facing a significant slowing in business activity, this is not yet the eve of destruction.

By John W. Sheridan
Chief Economic Editor

Military markets adapting

Overview: Yes, it's true that defense spending is, in inflation-adjusted terms, likely to continue its downward tilt through the mid 1990s.

Demand: It's also true, however, that international economies and their respective political policies are undergoing extensive changes at a rapid pace. While this transformation has been quickly heralded by the media as an ending to the Cold War, implying that we can now mold our armed forces differently (reduce them), I would point out that the world is far from being a kinder and gentler place.

In fact, it might be more unstable than ever. The Soviet Union is in the midst of a transformation which quite easily could lead to civil revolt. With annual inflation estimated at 80%, a budget deficit approaching 20% of gross national product and a double-digit unemployment rate, economic chaos could force the Soviets to become very aggressive in their need for basic resources (i.e., food).

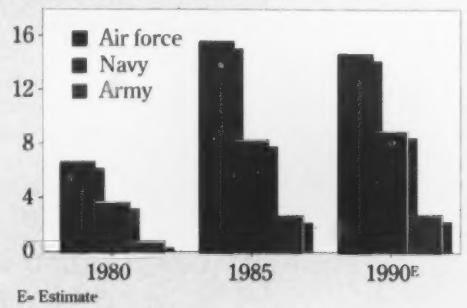
With respect to the rest of the world, a three-fold increase in the number of countries possessing nuclear weapons (to 15) is anticipated by the turn of the century, with leaders like Saddam Hussein at the controls.

Supply: The strategic nuclear triad (bombers, submarines and intercontinental ballistic missiles) will experience appropriation declines for the next five years. But, after the near-term slowdown offsets the spending acceleration which existed in the Reagan years, strategic outlays should return to a slow growth mode. Tactical outlays, however—assuming the U.S. continues its role as policeman of all the "Iraqs" in the world—should fare better.

Outlook: Military contractors in the aerospace industry will find the future leaner, and more difficult, especially with respect to their financial reports.

Defense procurement

Aircraft, billions of dollars



E= Estimate

Source: Aerospace Industries Association

CAD/CAM, CAE strong in 1990

Last year was a good one for the CAD/CAM, CAE (computer assisted design, manufacturing and engineering) industry. According to Daratech, Cambridge, MA, total sector revenue shot up 14% in 1990, with the three market leaders, IBM, Intergraph and Computervision, all experiencing double-digit growth.

The market leader, IBM Corporation, Armonk, NY, witnessed revenue growth of 18% in its CAD/CAM, CAE business (up 15% domestically and 20% abroad), largely because of continued dominance in the mainframe arena. This market will remain one of the strongest for growth in 1991, too.

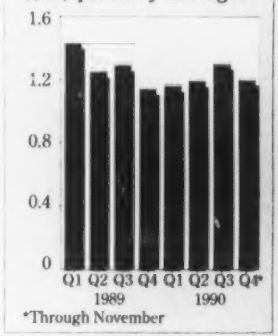
Recession drags red metal down

Production disruptions have been the explanation for the volatile and tight copper market. That's no longer the case, however, as the worldwide slowing of business activity, especially in the U.S., becomes the overriding fundamental in the price of copper.

When rebels forced the closing of the Bougainville Mine in 1989, 180,000 metric tons of copper per year was taken off the market. If this hadn't occurred, copper's price would already be below $1/lb, even assuming demand held solid. As it is, rising oil prices have made weak end-markets stagnate. Combined with 1991's anticipated increase in mine capacity, expected production rates and buildup of world inventories, the red metal's price is again forecast to head south of 90c/lb, before any sustainable pickup in demand occurs.

Copper

$/lb, quarterly averages



*Through November

Uncertainty curbs scrap exports

Iron and steel scrap exports have fallen significantly in the wake of the Middle East commotion. September's scrap export volume hit a 1990 low, with world demand; stagnated by uncertainty, expected to slide further. Ferrous shipments are up 8.2% on a year-ago basis, but much of that was due to strong demand from Turkey. A lot of Turkey's business ceased when Iraq invaded Kuwait. Higher freight costs and new supply from the Eastern European countries are also hurting domestic exports.

Mini-marts thriving

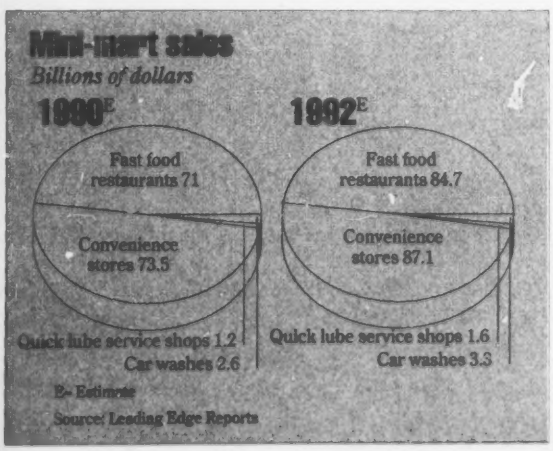
Overview: Mini-marts comprise convenience stores, fast food restaurants, quick oil change and lube service stations, and commercial carwash outlets. Combined, these segments have experienced yearly growth of 8.8% since 1987. In 1990, it is estimated that sales increased 8.6% for fast food restaurants, 8.8% for convenience stores, 14.6% for quick lube service shops and 13.7% for car washes.

Demand: American consumers have become the most time-conscious purchasers in the world. Inciting this change has been the rise in female labor participation and two-wage earner households. Except for brief lulls, gross national product is expected to continue its traditional climb, which translates into an upward trend for disposable personal income. Given that purchasing power keeps rising and the demand for convenience persists, consumption of mini-mart products and services should remain vigorous. Because customers pay a premium for convenience, however, the industry is not recession proof.

Supply: Quick oil change and lube service outlets represent the smallest segment of the mini-mart product group. This market segment is a direct outgrowth of previous oil crises, which brought about the rise of self-service gas stations and the abandonment of full-service facilities.

Over the next five years, the two smallest segments of the mini-mart market, quick oil change and lube service, and commercial carwashes, possess the greatest potential for growth. Slower growth is expected in the convenience store arena, while fast food restaurants should continue to do well, especially internationally.

Outlook: According to Leading Edge Reports, Cleveland, sales in the mini-mart market will grow 9% this year, and display average annual growth of 7.3% through 1995.



Aluminum strong in the '90s

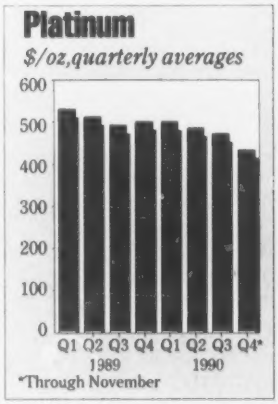
It appears that even the aluminum market is headed for a near-term slowing, but after the Iraqi crisis is resolved, the 1990s should see aluminum consumption moving up more than 2% annually.

One reason for the optimism is aluminum's use in automobiles. Following each of the previous oil shocks, auto engineers designed in more aluminum. In 1973, U.S. passenger cars on average used 81 lbs of aluminum. In 1990, the level had risen to an estimated 176 lbs per vehicle. By the turn of the century, analysts are predicting that domestic passenger cars will average 200-600 lbs of aluminum.

Also fueling optimism is beverage can demand, where aluminum shipments rose 6% in 1989 to 3.92 billion lbs, which accounts for 22% of the total industry. After coming in at 83 billion cans in 1989, Reynolds Metals is estimating 1990's level at 87 billion.

Platinum supply up, prices down

As much as 70,000 lbs of excess supply hit the platinum market last year, despite an uptick in demand of 3.4% to 3.6 million oz. Oversupply and weakening demand have worked to drag prices down to $412 a troy oz. While petroleum refining and petrochemicals are



increasing consumption, the general slowing of industrial activity (especially in autos, which has reduced the demand for catalytic converters), should keep the price of platinum between $400-450/oz through the first quarter. Rhodium ($4550/oz) and palladium ($92/oz) are also easing.

1-Meg tags firming

The dollar's recent decline against the yen will probably lead to an increase in the cost of one-megabit Japanese manufactured dynamic RAMs during the first quarter of 1991. Due to the 1986 U.S.-Japan Semiconductor Trade Agreement, all DRAMs made in Japan are subject to FMV (fair market value) pricing which is based on production costs. Because prices aren't allowed to fall below the FMV level and cost reductions in production aren't likely to offset the devalued dollar, expect DRAM prices to be moving higher.

Cotton better than ever

Overview: Cotton has firmly established itself on the consumer textile throng, and it doesn't appear that anything short of a supply shortage will keep it from making the 1990s a decade of further conquest.

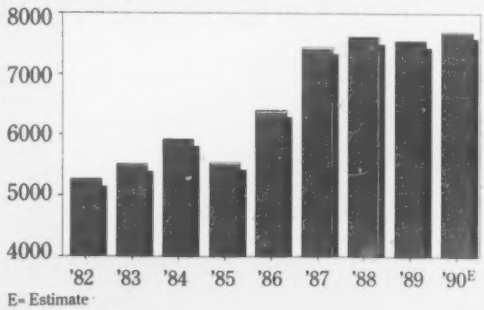
Demand: Excluding carpets, cotton now accounts for 50% of the consumer textile market. In fact, it's been roughly 20 years since U.S. textile mills have demanded this much cotton.

Cotton's market share hit an all-time low in 1975, when synthetic fibers were the craze. In 1984, the fiber still only commanded 41% of the market. In the second-half of the 1980s, however, the industry recognized a change in demographics: a significant portion of the populace valued the natural fiber. This awareness stimulated new advertising and promotion programs, as well as leading-edge product development. Together, these factors have allowed cotton to once again become America's most popular retail fiber.

Supply: Assuming no major shifts in consumer sentiment, only possible supply shortages threaten to slow cotton's domination of the textile market. The fact that cotton is a biological product and that it must be grown, means that the potential for demand to outpace supply exists, in the short run, because plantings are seasonal (spring) and crop size is limited. Shortages are especially a threat when demand continues to increase, while the carry-over between cotton crops is low, as it is now.

While the tightness in supply will begin to pressure prices higher until the next harvest, excess yarn production capacity will make it difficult for spinners to pass along higher raw material costs.

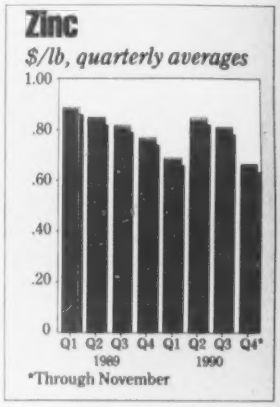
Outlook: Unless mother nature unexpectedly impedes future harvests, supply should keep pace with worldwide demand, which should continue its upward trend.



Box sales outlook strong

The Fibre Box Association reports that through September 1990, industry shipments of corrugated and solid fibre had advanced 0.6% on a year-ago basis, with containerboard consumption rising 2% over the same period.

According to The Freedonia Group, corrugated and solid fiber boxes will continue to be the mainstay of the box industry, displaying yearly growth of 6.3% through 1994. The Cleveland research firm believes that advances in printing technology, laminates and coatings, along with low cost and recyclability, will keep performance up in the corrugated and paperboard box industry, despite stiff competition from plastic packaging alternatives (shrink and stretch wraps, rigid plastic containers, blister packs and corrugated plastic boxes).



faces being galvanized. More competitive products (thin-wall die casting and lighter galvanizing coatings) have also been developed. Slow but solid annual growth of 1.5-2.5% is anticipated through 1995. With the summer's supply disruptions behind us, Zinc's near-term outlook includes further weakening in demand and easing prices, as its primary markets (autos, appliances and construction) struggle to break free from recessionary conditions.

Slow, stable demand for zinc

Over the past 15 years, environmental concerns, new substitutes and a decline in the number of industries using the metal all worked to dampen zinc's strong growth during the 1960s. Analysts expect the industry's transitional period, however, to pay dividends for years to come. Zinc applications have been expanded with more and more steel sheets and sur-

Octane costs altering demand

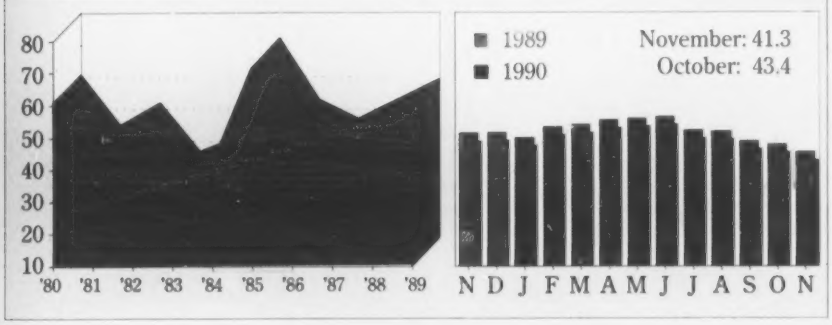
Higher prices at the pump are motivating consumers to turn away from expensive premium gasoline and fill their tanks with regular unleaded fuel. The demand shift is weakening the hydrocarbons market, with the prices for MTBE (methyl *tert*-butyl ether), toluene and mixed xylenes all falling. The spot price for toluene has dropped 25¢ to $1.15/gal.

BUSINESS DATATRAK

By John Sheridan, chief economic editor

N. A. P. M. business barometer

Based on five indicators (employment, inventories, new orders, production, vendor performance)



KEY ECONOMIC TRENDS

The foolish and the sensible

The signs of recession are highly visible now that its probability is topping 90%. Does this mean a recession must come to pass? No. Only the foolish, however, would not include in their strategic plan a recession-based scenario.

The trouble is, the sensible who are developing such plans, while promoting their own self interest, may as a result of their collective actions, increase the probability of recession for the economy as a whole.

In game theory, economists develop mathematical models which capture the decision-making of economic agents, based on rational expectations. It can be shown that when the chance of recession is 50% or higher, and given the probability and expected returns of alternative decisions, businesses will undertake actions in preparation of recession. Such actions include: postponing investments; reducing new orders and decreasing production in order to keep inventories in line; undertaking new cost reduction programs (slashing expense accounts); pushing back repayment schedules; and possibly cutting back employment—all activities which, when collectively followed, are detrimental to the continuation of economic growth.

Consumers are economic agents too, and their actions are also altered by recession concerns. Since consumer spending is roughly two-thirds of gross national product (GNP), retrenchment here is extremely significant.

This is the reason why so many economists 1) are confident that a recession is underway; 2) feel the third-quarter GNP number is an aberration (a data anomaly not representative of current market conditions); 3) put so much emphasis on more recent—and more dismal—statistics, such as consumer sentiment and help-wanted advertising (see chart).

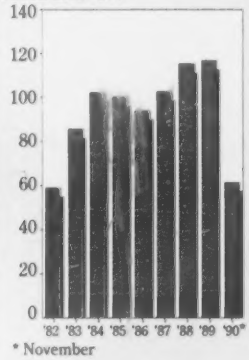
Despite all this, some of us are keeping the faith. When business cycles start down the road to recession, a number of counter measures exist. Aggregate demand can be stabilized by altering fiscal or monetary policy, or from an external shock (German unification, which could boost export demand, or falling oil prices, which would reduce costs throughout the system).

Fortunately, the recent budget accord eliminates the worst of these possibil-

Leading Indicators

Consumer attitudes

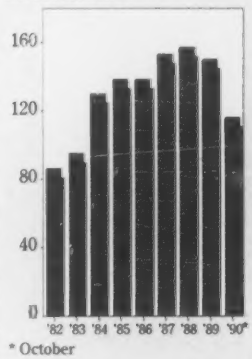
Index 1985=100



* November

Help-wanted advertising

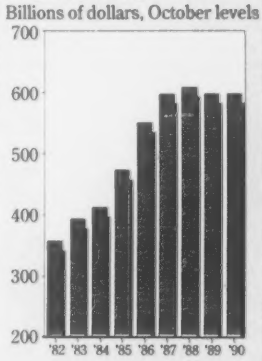
Index 1967=100



* October

Total reserves

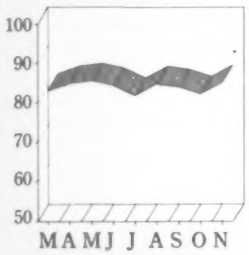
Billions of dollars, October levels



Source: The Conference Board; The Board of Governors.

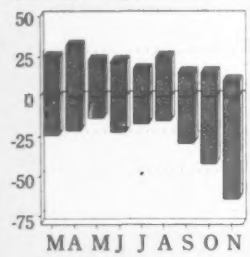
Steel

Operating rates

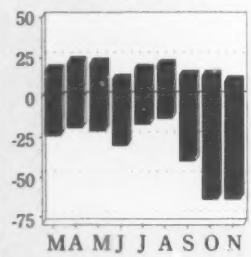


Inventories
(months supply on hand)

Demand (Steel Service Centers)
(Percent of respondents)



Demand (NAPM)
(Percent of respondents)



Source: Steel Service Center Institute
NAPM Steel Buyers Committee

ities—the increase of government spending. And while many of my colleagues argue that the Federal Reserve is currently limited in the discretion it can bring to bear, the level of total reserves in the system suggests differently (see chart).

While the Fed has recently lowered the federal funds rate, this is only one piece of the puzzle. If banks tighten their lending policies, or the demand for credit declines, a lower fed funds rate becomes a relative issue.

What total reserves are telling us is that the Fed must ease more. Here's why: if reserves grow faster than output (too much money chasing too few goods), the result is inflation; if reserves grow less than output, the result is deflation. Unfortunately, what accompanies this type of deflation is recession, which is the reality we are quickly approaching.

METALS SCENE

Weakness intensifies

October's average daily shipping rate (ADSR) in the steel service center industry plunged 6.8%. None of the seven product classifications escaped month-to-month declines: carbon flat roll, -5.9%; carbon plate, -4.7%; carbon bars, -8.9%; carbon tubing, -12.3%: carbon structurals, -6.9%; stainless 2.4%, and alloy 5.3%.

Steel Service Center Institute (SSCI) President Andrew G. Sharkey pointed out, "The declines in these carbon product categories are the most significant across-the-board declines this year, indicating that a slow-down may have begun in the capital goods market." Since capital goods were largely responsible for the strong performance of steel service centers through the first nine months of 1990, the slowing carbon product market could prove critical.

While the year-over-year shipping rate remains up 0.8%, October's ADSR was off 3.4% from its year-ago level. Last year, however, nearly all of the seven product classifications improved in the fourth quarter. This year, it's relatively assured that the performance of steel service centers in the last quarter of the year will fall below 1990's third-quarter level.

In the SSCI's latest monthly report, 60% of the members polled now expect incoming orders to decrease during the next three months. It's been over two years since such a bearish outlook surfaced. Another concern for SSCI members is that customers are beginning to extend payment schedules.

Inventories remain a source of good news. In October, service centers possessed 3.15 months of shipments on hand. This compares favorably to both previous month (September 3.60) and year-ago levels (October 1989 3.32).

Nickel: The late-summer price surge was primarily due to the New Caledonia supply disruption, which stimulated a roughly $1.50/lb firming in nickel's price, to $5.30/lb in late August. The recent price erosion has nickel now trading between $4-4.50/lb.

Nickel supplies are falling, suggesting upward pressure on prices. Global nickel stocks are now at a less than two-month supply, which is quite low when compared to historic levels of 3-5 months. Many leading producers are also in the process of cutting back production (Inco, Falconbrigde, Timmins, Pacific Metals, Sumitomo and Falcondo) with the combined loss of Western World supplies equaling 6%.

Despite tightening domestic supplies, however, the intensifying end-market downturn (the steel industry represents 60% of total demand) should incite an easing of demand, sufficient enough to keep nickel prices in the low $4/lb range, or lower, through mid-year.

Import prices
(Compared to domestic)

STEEL BUYERS
ABOVE 25%
SAME 34%
SLIGHTLY BELOW 41%
SUBSTANTIALLY BELOW 0%
SERVICE CENTERS (CARBON)
ABOVE 2%
SAME 69%
5-10% BELOW 29%
11-20% BELOW 0%
OVER 20% BELOW 0%

REGIONAL PERSPECTIVE

Fed survey pessimistic

The latest "Beigebook" indicates that economic activity has slipped further in most of the 12 Federal Reserve Districts.

Industrial activity: Manufacturers in the First District (Boston) report that sales in late 1990 continued to exceed year-ago levels, but new orders have begun to slow noticeably. A number of firms in the New England region have revised capital spending appropriations downward for 1991, with nearly all investment going toward new equipment, aimed at enhancing productivity.

The Second District (New York) and the Third District (Philadelphia) didn't escape deterioration either. Unemployment has risen more than one-half percent in New York since August, and both production and working hours are being scaled back. Many firms in the region expect the slowing trend of new orders to continue through winter.

In the Fourth District (Cleveland), manufacturing is trying to offset the drag being applied by a slowdown in both retail sales and loan activity. While most of the survey respondents don't feel that the region is in recession, they are growing uneasy about near-term prospects. Manufacturing employment in Ohio is still only slightly below its early 1989 peak, and output from the manufacturing sector remains steady.

Manufacturers in the Fifth District (Richmond) cited higher raw material costs as a problem, mainly because weak-end markets are preventing them from raising the prices of finished products to the same degree. The outlook of those surveyed has grown more pessimistic, with only a few expecting conditions to improve in the next six months.

Oil and defense-related industries are doing well in the Sixth District (Atlanta). Military apparel producers are now running at capacity, while military high-tech orders are also up significantly since September. Orders for the majority of firms producing goods for the private sector, however, are slowing.

District Seven (Chicago) manufacturing still shows signs of expansion, with steel and industrial equipment output offsetting new softness in auto, electronic component and agricultural equipment production. No increase in steel order cancellations has been reported.

Production slowdowns and layoffs at durable goods operations in the Eighth District (St. Louis) are stagnating business performance there. Much of the problem is due to the trickle down from auto and construction orders, which have been cut severely. A primary aluminum producer says that no drop in orders is surfacing, while nondurable producers also say that orders are stable.

Manufacturing performance in the Ninth District (Minneapolis) is said to be mixed, with computer and electronic firms struggling in recession-like conditions. Sales by aircraft industry suppliers, however, were up 30% in late 1990 on a year-ago basis, with no fall-off expected. Medical instrument producers, the defense industries and ordinance suppliers all remain sectors of strength in this region.

The economy is still moving forward in the Tenth District (Kansas City), but energy costs are a concern. Fuel prices are pushing up costs across the board, i.e., production, packaging and transportation. Many firms are making an effort to reduce inventories in anticipation of slowing sales.

Production and orders have fallen in the Eleventh District (Dallas), but sectors of strength remain. Firms dependent upon the construction sector are struggling and softness is also very visible for apparel, electronic components, lumber and wood products, and fabricated metals. Production is strong, however, in the steel, petrochemical and personal computer fields. An uptick in demand for oil-related machinery is also being observed.

Manufacturing employment and attitudes are declining in the Twelfth District (San Francisco). While the boom in the commercial air industry continues in the northwest, inventories by many other producers are perceived to be too high, raising concern. Job losses from California's major defense-related contractors and unemployment due to inventory correction are expected to keep manufacturing employment in this region moving down for some time.

Retail sales: Only the Chicago district is experiencing an uptick in sales, with all other districts reporting slower or falling sales growth. While most retailers believe inventories are at acceptable levels, some have begun cautiously trimming stocks. Many of the respondents said they are very worried about the near-term performance of consumer sales, hinting that significantly discounted prices might be necessary to keep merchandise moving.

Construction and real estate: Building activity has clearly slowed in all regions, with more stringent financing criteria and previous overbuilding existing as the major impediments.

Financial: Lending standards are said to be tightening in nearly all areas of the country. Many bankers now feel that a credit squeeze is affecting small businesses and consumers. Total loan demand is flat to down in all regions of the country.

CURRENT PRICES

Oil hardens "soft landing"

Iraq's invasion of Kuwait has shot down the Federal Reserve's soft landing strategy on economic growth. Soaring oil prices have created the worst-case scenario of falling output and rising costs—at the same time.

In a recent study by the Federal Reserve Bank of Cleveland, empirical evidence seems to indicate that the ability of the economy to "ride out a long-lived energy price shock has improved substantially since the oil crisis of 1974." Since 1973, industrial output has risen 50%, while the sector's usage of petroleum has dropped 9%. Despite the fact that energy efficiency is up 55% in the industrial sector and 37% in the economy overall, higher crude oil prices are slowing business activity while simultaneously inciting rising levels of inflation and unemployment.

With respect to prices, the authors point out that it is the negative shock applied to output that allows rising oil costs to incite a pervasive acceleration of inflation. They argue that unless the level of money in the system is reduced, more money will be chasing fewer goods after an oil shock, thus promoting a rise in the general level of prices.

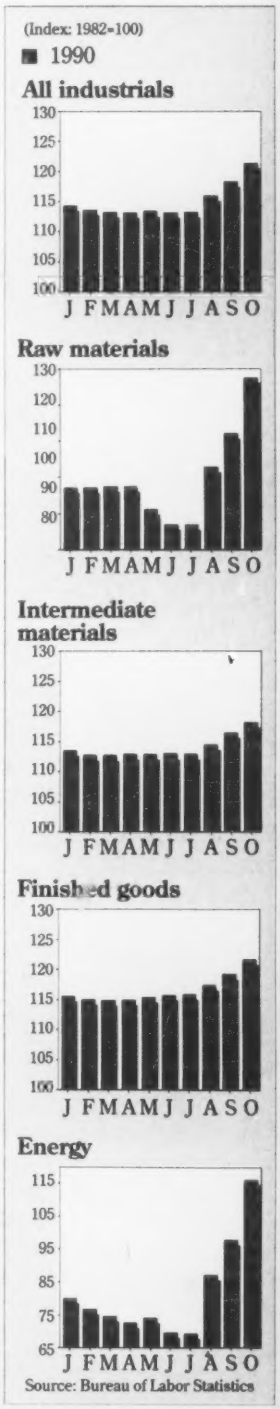
One should remember, however, that while the oil shock may have pushed the economy off the growth cliff, it was restrictive monetary policy during the previous two years that raised our vulnerability (see DataTrak lead story). Given that inflation is a long-run phenomenon, short-run monetary discretion aimed at stimulating demand would diminish the current level of uncertainty which has pushed our economy into a "meaningful downturn."

This month's breakdown

Index 1982=100

	Latest level	month ago	year ago
Bearings	130.7	0.0	4.1
Bolts, nuts, etc.	116.5	-0.9	1.6
Chemicals, inorganic	112.7	0.4	1.8
Chemicals, organic	119.9	4.0	6.8
Concrete products	114.2	0.2	2.3
Corrugated containers	107.5	-0.2	-4.4
Cutting tools, small	113.4	0.3	1.4
Electrical lamps (bulbs)	130.7	0.0	4.1
Electronic components	117.6	0.2	-1.9
Fans and blowers	124.6	0.3	3.7
Foundry and forge products	117.5	0.0	2.0
Fuel oil (residual)	72.1	21.6	49.6
Furniture, commercial	134.4	0.5	2.9
Gasoline	98.1	6.2	50.2
Glass, flat	106.6	-0.2	-2.8
Glass containers	121.0	0.1	4.6
Gypsum products	103.2	0.1	-5.8
Hand tools	135.4	0.1	4.9
Hand tools, power driven	121.6	0.0	3.9
Industrial furnaces	128.2	0.3	2.4
Integrating and measuring instruments	127.3	0.0	3.8
Internal combustion engines	121.4	0.0	4.3
Lubricating oil	125.9	6.8	12.3
Lumber millwork	130.6	0.1	1.9
Material handling equipment	115.9	0.1	2.6
Metal containers	114.0	-0.2	0.9
Metal mill shapes	134.5	1.9	-1.8
Metal tanks	114.4	0.4	2.4
Metalworking machines	124.1	0.6	4.0
Motors and generators	132.9	-0.2	2.1
Motor trucks	123.7	5.0	3.9
Nonferrous metals	139.9	0.6	-0.2
Office and store equipment	108.8	0.1	-1.3
Paperboard	133.9	0.6	-4.2
Paper boxes and shipping containers	129.3	0.0	-1.3
Paper office supplies	121.9	0.4	0.2
Paint	126.0	0.5	4.1
Plastic resins	125.1	1.2	0.3
Precision measuring tools	129.2	0.3	3.1
Pumps and compressors	120.3	0.2	3.5
Refactories	123.0	0.1	2.8
Rubber belts and belting	121.6	2.4	3.7
Scales and balances	109.6	0.2	2.6
Switch gear	125.8	0.4	5.1
Textiles, synthetic fibers	106.3	-0.9	-0.7
Textiles, gray fabrics	116.7	-0.4	0.2
Tires and tubes	97.3	0.2	0.1
Transformers and power regulations	121.8	0.2	1.9
Welding equipment	129.2	0.4	5.4
Wire and cable	147.3	0.7	-1.3

Industrial prices



Source: Bureau of Labor Statistics

PROCUREMENT

Little doubt now

It seems improbable that the economy didn't experience negative growth last quarter. Both major forewarning indexes (the Purchasing Managers Index and the Government's index of leading indicators) have been sounding the recession alarm since July, which is enough to convince even the most optimistic of economists. The question now is, will the economy snap back in early 1991, or continue to unwind, snowballing from a mild recession into a severe one?

According to the latest Report on Business from the National Association of Purchasing Managers (NAPM), November was the fifth straight month of decline for the domestic economy. Worse yet, the 41.3% level is the lowest the Purchasing Managers Index (PMI) has stood since the trough of the last recession.

Robert J. Bretz, chairman of the NAPM's Business survey committee, commented that "If the PMI remains unchanged at the November level for December, then past experience indicates this would be consistent with real GNP growth of approximately 0.9% for all of 1990 and a decline in the fourth quarter real GNP of approximately 0.6%."

Raising concern that the economy's current correction hasn't stopped unwinding is the level of new orders (see chart), which continues to descend. November's reading of 39.4 is the fifth consecutive drop, and is the lowest level since May 1982, which was the 10th month of the last recession.

New export orders continue to display strength, as expected, but appear to be more than offset by production and employment declines. A number of NAPM respondents said activities aimed at reducing employment were underway, including: layoffs, plant closings, reductions through attrition, hiring freezes and early retirement.

Heating oil

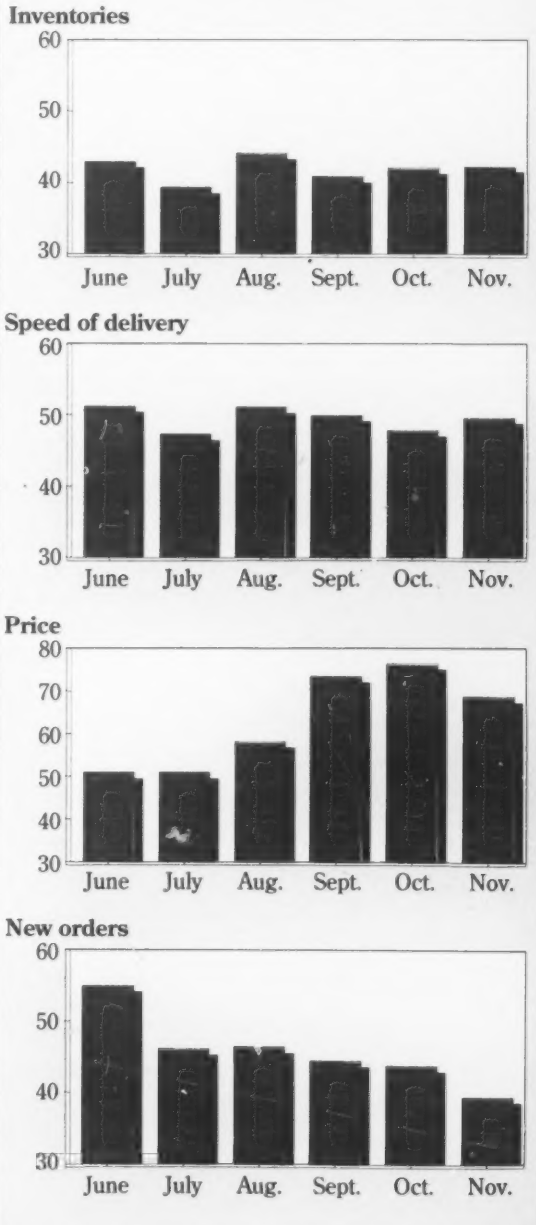
During the past two winters, the United States consumed more than 1.5 million barrels per day (mb/d) of heating oil. Businesses, industries and more than 11 million homes rely on heating oil to generate warmth or produce electricity.

With winter upon us, and the Middle East commotion persisting, concern is being raised over heating oil's supply. Last winter, the coldest temperatures since 1895 swept across the central and northeastern U.S., creating a sudden surge in demand. While this winter has been more tame—thus

NAPM procurement trends

(Seasonally adjusted diffusion indexes)

An index where 50 is defined as the neutral level, to the extent a reading is above 50, it represents an expansionary tendency. More particularly, rising inventory, prices, and new orders are seen as positive signs of economic growth. A trend towards lower deliveries is similarly interpreted.



far—no supply shortages are expected even if temperatures drop severely.

A triad of sources supply heating oil's end-markets: domestic refinery production, inventories and imports. Assuming normal temperatures this winter, the Department of Energy estimates that domestic consumption of distillate fuel (which includes heating oil and diesel fuel) will approach 3.5 mb/d. This is well below the potential 3.8 mb/d the American Petroleum Institute estimates that the U.S. petroleum industry can supply. Two other reasons make the possibility of shortage remote: 1) even if production falls short, inventories at the beginning of the winter were at historically high levels 2) if necessary, domestic companies can bid in the world market for additional heating oil.

Despite an adequate supply, prices have moved higher since Iraq's invasion of Kuwait last August 2, due primarily to speculation over crude oil. This differs from the experience of the 1980s, when competition and declining petroleum prices led to lower heating oil costs. While heating oil's retail price plunged nearly 50% between September 1981 and September 1989, the price has soared roughly 40¢ per gallon ($1.30) since Hussein's aggression.

LATEST SPOT MARKET PRICES

	Latest price	Previous month	Year ago
FERROUS METALS			
Steel, bars, stainless, 303, cwt	188.00	188.00	179.00
Steel, bars, HR carbon, 1000 series, cwt	19.20	19.20	21.00
Steel, bars, HR carbon alloy, cwt	25.00	25.00	24.50
Steel, bars, CF carbon 12L14, cwt	34.00	34.00	34.50
Steel, plates, carbon, cwt	24.25	24.25	25.20
Steel, plates, strip mill, cwt	23.60	23.60	23.60
Steel, plates, alloy, cwt	34.05	34.05	34.55
Steel, sheets, C.R., class 1, cwt	30.65	30.65	29.65
Steel, sheets, HR, cwt	23.00	23.00	22.25
Steel, sheets, stainless, 304, cwt	124.00	124.00	124.00
Steel, strip, HR carbon, cwt	22.10	22.10	22.10
Steel, strip, CR carbon, cwt	36.18	36.18	38.30
NONFERROUS METALS			
Aluminum, unalloyed ingot, lb	0.71	0.80	0.82
Aluminum, alloyed ingot, 355, lb	0.94	1.10	0.95
Aluminum, secondary ingot, 380, 30000 lb lot	0.71	0.75	0.73
Antimony, lb, merchant	0.85	0.88	0.95
Cadmium, N.Y., dealer, lb	1.20	2.20	4.60
Copper, electrolytic wire bars, lb	1.23	1.29	1.19
Copper, cathode, full plate, lb	1.16	1.21	1.10
Gold, N.Y., troy oz	384.85	379.50	402.90
Lead, common, N.Y., lb	0.38	0.41	0.42
Magnesium, pig ingot, (99.8%), lb	1.63	1.63	1.63
Mercury, 50 fl. lots, N.Y., fl.	185.00	205.00	270.00
Molybdenum, oxide, canned, lb	3.35	3.35	3.32
Nickel, cathode, dealer, lb	3.77	3.98	5.85
Platinum, dealer, oz	418.00	429.00	494.00
Silver, N.Y., troy oz	4.10	4.20	5.20
Tin, N.Y., dealer, lb	2.63	2.97	4.38
Zinc, high grade, lb	0.70	0.65	0.82
Zinc, die casting alloy, No. 3, lb	0.78	0.78	0.74
PAPER (unit=ton)			
Uncoated book #3 offset	940.00	940.00	940.00
Uncoated bond #4, 83 bright	900.00	940.00	900.00
Watermarked bond, 20 lb sheets	1090.00	1090.00	1095.00
Unbleached kraft paper, grocery bag, 30 lb	660.00	630.00	660.00
Bleached kraft, grocery bag, 30 lb	800.00	800.00	800.00
Solid bleached kraft paperboard, folding	830.00	830.00	830.00
Kraft linerboard, 42 lb, domestic, East	370.00	370.00	410.00
Newsprint, 30 lb, East	565.00	565.00	540.00
TEXTILES (unit=lb)			
Acrylic, open-end spun, 1/18, unbranded	1.74	1.50	1.84
Carded cotton, ring-spun, 18/1	1.56	1.58	1.61
Carded cotton, open-end spun, 18/1	1.35	1.43	1.40
Combed cotton, ring-spun, 100%, 18/1	1.75	1.75	1.85
Nylon, textured, 70/2	2.70	2.70	2.45
Polyester, 50/50% carded cotton, 30/1	1.77	1.89	1.87
Polyester, ring-spun, 100%, 16/1, unbranded	1.48	1.53	1.58
Rayon, high-wet modulus	1.48	1.48	1.30
CHEMICALS			
Acrylonitrile, tanks, lb	0.36	0.35	0.40
Ammonia, anhydrous, tankcars, ton	125.00	115.00	123.00
Benzene, gal	2.00	2.15	1.50
Caustic soda, metric ton	335.00	355.00	320.00
Cresylic acid (over 25%), tanks, lb	0.60	0.60	0.55
Formaldehyde, 37%, (12%-15% meth.),, tanks, lb	0.12	0.14	0.11
Glycerine, synthetic, 96%, tanks, lb	0.76	0.76	0.79
Methanol, syn., barges, Gulf Coast, gal	0.47	0.45	0.50
Naphthalene, crude, tanks, lb	0.20	0.17	0.16
Phthalic anhydride, molten, tanks, lb	0.51	0.54	0.41
Polyethylene resin, low density, lb	0.48	0.48	0.52
Polypropylene, homo-injection, lb	0.49	0.46	0.51
Polystyrene, general purpose grade, lb	0.58	0.61	0.59
Polyvinyl chloride, pipe grade, lb	0.36	0.36	0.44
Soda ash, light 58%, 100 lb, paper bags	160.00	155.00	135.00
Styrene monomer, 99.6%, tanks, lb	0.48	0.45	0.49
Sulfur, dark, Tampa, FL, long-ton	140.00	140.00	142.00
Sulfuric acid, 66%, commercial, tanks, ton	69.89	69.89	66.86
Titanium dioxide, anatase, reg., carlots lb	0.99	0.99	0.95
Xylene, Gulf Coast, spot, barge, gal	1.50	1.51	0.95
BUILDING MATERIALS			
Lumber, 2x4 fir, mbf, cl	323.35	337.24	345.63
Lumber 2x4 pine, mbf, cl	315.38	329.35	321.47
Plyform, 3/4", msf, cl	595.80	609.81	570.00
Plywood, 5/8", msf, cl	361.95	365.49	360.21
Cement, type 1, bulk, ton	62.10	62.44	63.88
Sand, concrete, ton, cl	6.87	6.86	7.17
Ready-mix concrete, 3000 psi/cu. yd.	49.65	49.43	48.81
Crushed stone, base course, ton, cl	6.18	6.13	5.84
Concrete blocks, sand/gravel, 8"x8"x16",, per hundred	84.47	84.58	87.17
Reinforcing bars, grade 60; per cwt.	21.71	21.96	22.10
Asphalt paving AC-20, ton	122.72	112.07	108.53
Concrete sewer pipe, 24", per ft, cl	17.79	17.94	18.00
FUELS			
Crude oil (W. TX Int.), bbl	30.25	35.50	20.40
Diesel (reseller rack, Chi.), gal	0.90	0.95	0.51
Heating oil No. 2 (N.Y.), gal, spot	0.86	0.90	0.56
Heating oil No. 2 (Gulf spot), gal, spot	0.84	0.89	0.48
Fuel oil No. 6 (N.Y.), tank car contract	23.35	26.90	18.75
Gasoline (prem unled N.Y.), gal, spot	0.80	1.02	0.78
Gasoline (reg unled N.Y.), gal, spot	0.78	1.01	0.59
Kerosene (reseller rack, Chi.), gal	1.00	1.07	0.60
SCRAP MATERIALS			
Aluminum, old sheet & cast, cl	0.42	0.45	0.43
Aluminum, mixed clips, cl	0.49	0.52	0.50
Brass, yellow solids, cl	0.62	0.60	0.57
Copper, No. 1, brass ingot makers', cl	0.97	1.01	0.93
Copper, No. 2, brass ingot makers', cl	0.87	0.91	0.84
Steel, no. 1, hvy.; dlvd.; Pitts., ton	105.00	109.00	99.00
Steel, no. 1, hvy., dlvd., Chi., ton	105.00	112.00	108.00
Zinc, old, smelters scrap, cl	0.30	0.30	0.35
Zinc, die cast slab, smelters scrap, cl	0.36	0.36	0.37

Sources: Metals Week, American Metal Market, Engineering News-Record (20-city averages), America's Textiles International, Journal of Commerce, Chemical Marketing Reporter, Pulp and Paper Week.

* This page has been revised to better serve you.

Snapback or unwinding: A Look at 1991

The major uncertainty overhanging the economy at the moment is clearly the resolution of the Mideast Crisis. What has happened so far has already *almost* guaranteed at least a minor recession; what happens from here on may lead either to a swift snapback or "cumulative unwinding" of economic activity. Since the time that elapses between writing and publication is dangerously long when measured relative to the pace of recent events, it is imperative to spell out our *assumptions* about oil prices.

We assume that the average price paid by U.S. refiners for foreign oil will fall from $34.00 per barrel in the fourth quarter of 1990 to $24.74 by yearend 1991, as compared to the below-$16 price which existed in the second quarter of 1990. The magnitude of this "shock," when account is taken of the current importance of energy in the overall economy, is still less than that of OPEC I (1974-75) or OPEC II (1980-82). What is important to understand, however, is that the shock was applied to an economy that was already weakening; in the fifteen months to the second quarter of 1990, real GNP grew at an annual rate of only 1.2%.

(Growth rates except where stated)

	1990	1991
Real GNP	1.0	-0.2
Consumer spending	1.1	-0.3
Business fixed investment	1.3	-0.9
Government spending	2.6	-0.7
Exports	5.3	4.3
Imports	2.8	-1.4
Industrial production	1.3	-1.7
Housing starts (mill)	1.22	1.15
Car sales (mill)	9.5	8.7
GNP deflator (implicit)	4.1	3.7
Consumer price index	5.5	5.0
Producer prices-finished goods	5.2	5.2
Federal deficit ($ bill)	220.0	276.0
Merchandise trade deficit ($ bill)	106.0	104.0
Unemployment rate (%)	5.5	6.8
Prime rate	10.0	9.2

Source: DRI

Consumer confidence went south immediately following the Kuwait invasion, and the unemployment rate has risen to 5.7% from 5.2% in June. It is therefore highly likely that consumer spending was weak enough in the fourth quarter of 1990 to cause overall output to fall. And growth is likely to be close to nonexistent in the first half of this year as consumers bring their spending back into line with real income growth.

Beyond mid-year the sky looks a little brighter. By that time oil prices should be coming down, which will contribute to a very good inflation performance (price gains elsewhere will be moderate because of the weakness of the economy). Interest rates will be lower than they are now— the prime rate, for example, should fall to 9.0%, which will be good for the interest-sensitive sectors of the economy. In particular, housing surely has room to cease being a drag on the economy, and will then provide some impetus to growth.

Most importantly, the recent weakness of the dollar should cause export growth to continue to be fairly strong, while import growth may come to a grinding halt because of both weak demand and poor relative price performance.

Finally, the inventory cycle that accompanies all recessions will eventually be over, and just the resumption of accumulation will add some strength to the economy.

This short-lived recession will drive the unemployment rate up to a peak of 7.0% towards the middle of next year. This makes it a very mild episode compared with OPEC I and OPEC II, when employment rates peaked at 9.0% and 10.8% respectively, but about on par with the 1970 recession.

The reasons to expect a mild recession have been well rehearsed in the media in recent months. The three major elements that frequently precede recessions, are conspicuously absent. There is no

by Christopher N. Caton and Robert J. Brown, Jr.

Robert E. Brown, Jr. is the director of DRI's Construction Industry Service.

serious inventory overhang, no non-energy inflation problem, and monetary policy is less draconian.

A more severe recession is unquestionably possible. One school of thought says that debt service problems mean any economic weakness will be accompanied by a slew of corporate bankruptcies that will further drag the economy down. A higher or more prolonged peak in the price of oil would also considerably worsen the outlook. And there is also the nagging thought that traditional forecasters always expect forthcoming recessions to be relatively mild.

Table 1 gives details of DRI/McGraw-Hill's forecast for key economic indicators in 1991. Note that real GNP growth will be slightly negative, while disposable income will have its weakest year since 1974. Consumers will be hit by rising import prices and by an increasing tax burden. Consumer price inflation is relatively high, mainly because of the year-on-year effect of oil prices; by the end of the next year inflation should be back below 4.0%.

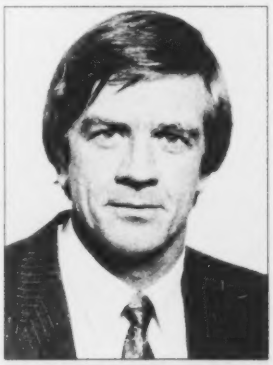
Note that the fundamental problems remain. The merchandise trade deficit ceased to improve, remaining above $100 billion, while the federal deficit hangs above $275 billion in fiscal 1991, and recall that this was the year in which the original Gramm-Rudman-Hollings legislation called for budget balance.

The industrial sector is likely to fare poorly; the fastest-growing markets for goods will be overseas rather than domestic, so companies with substantial markets abroad will do well. Total industrial production should fall by 1.7%, which implies that manufacturing employment will continue its long slide that began in January 1989.

Inflation outlook: The price inflation prospects for the coming year will be defined by two major influences: the recent surge in oil prices and the weakness of the U.S. economy. These factors work at odds with each other so that there is no clear picture of the path of inflation in the aggregate. The slowdown in economic activity is already taking its toll on labor markets—the U.S. civilian unemployment rate has risen from 5.2% to 5.7% in the latter half of 1990 and is projected to remain above 6.0% throughout 1991—restraining wage gains in the coming year and reducing upward pressure on prices from labor costs.

The overriding influence will come from the demand side. While the rise in oil prices has certainly had an immediate impact on inflation of energy-intensive goods, the impact will be short-lived, with prices retreating as a negotiated settlement in the Middle East is completed. Because the increase in oil prices takes the form of a temporary spike rather than a sustained increase, it will not affect production costs to any great extent. For example, the price index for energy and related products follows its 1990 increase of 14.1% with another jump of 15.4%, while the price index for non-energy industrial commodities rises just 3.7% in 1991 after an even smaller 2.1% rise in 1990. Not surprisingly, highly energy-intensive products such as chemicals and plastics will be among the most rapidly escalating products in the coming year. The aggregate chemicals price index rises 7.1% in 1991 and the plastics and rubber products price index rises 3.0%. In 1990, both of these indexes rose less than 1.0%.

The weakness in demand that has already affected the construction and automobile industries will spread to much of the manufacturing and service sectors in the final quarter of 1990 and the first quarter of 1991. Building materials prices are quite seriously affected by the demise of the residential construction industry. After averaging increases of almost 6.0% per year between 1987 and 1989, lumber prices eased to a 2.5% gain in 1990 and will then decline to 0.6% in 1991. Concrete product prices do not slow



down to the same extent, due in part to higher energy costs and a slightly stronger nonresidential building sector.

Inflation at the consumer level will be more robust than at the producer level, a result of strong increases in the prices for energy and medical care. Even when the volatile food and energy sectors are excluded from the inflation calculations, consumer price inflation (4.7% in 1991) exceeds that at the producer level (3.7%). Energy prices will again be the fastest-rising component of the CPI, posting a 12.8% gain in 1991. Better weather in the last year translates into better growing conditions and, hence, modest food price increases; the 3.9% increase projected in 1991 for consumer food prices is the smallest since 1988. ***PW***

Econometric models need interpretation

When economists build models, they put together a mathematical argument based on historical data. Unfortunately, the weights associated with each of the model's input variables don't, in real life, remain constant. Because anecdotal evidence reflects key economic changes before such changes actually show up in the data, the country's best forecasters temper econometric models with personal judgement.

Nevertheless, models are excellent for attempting to assess many complex interrelationships, and for raising our awareness of future economic possibilities. Right now, the models are warning buyers to prepare for tough times. The WEFA, Merrill Lynch, and Laurence H. Meyer & Associates models all expect negative real output growth, as measured by inflation-adjusted gross national product (GNP), for at least two quarters. While all three models forecast the downturn to begin in the fourth quarter of 1990, their pessimism regarding duration does differ, with the most pessimistic predicting recessionary conditions through mid-year. With respect to the magnitude of the forthcoming correction being forecast, the models are relatively optimistic, projecting a milder-than-average recession.

Remember, however, that the output in the corresponding tables is highly sensitive to the Middle East commotion. If war breaks out, and production facilities are forced off line, our recession is likely to be more prolonged and painful than the models indicate. On the other hand, oil prices should quickly fall once the Iraqi turmoil is removed. In fact, with the threat to production facilities gone, current world reserves could send oil prices below their pre-invasion level, stimulating a period of substantial deflation (falling prices). This deflation scenario, if not eliminating recession, would certainly reduce its length and severity.

The researchers at Laurence H. Meyer & Associates, St. Louis, cite the potential for financial distress to deepen and prolong their model's recession projection. If financial troubles occur, bank failings will increase, further reducing the availability of credit. Worse yet, the ripple effect from this would induce short-sighted firms to cut back employment, in an attempt to service current debt levels.

According to the WEFA Group, Bala Cynwyd, PA, the need to attract foreign capital for U.S. deficit financing, along with the oil shock, limits the Federal Reserve's ability to lower interest rates. This, accompanied by the budget accord with its tax increases and expenditure cuts, leaves the domestic economy without an adequate counter-cyclical tool to offset recession, thus supporting their model's negative outlook.

If the negative economic growth figures forecast by the three models turn out to be true, then their projections for the other major economic variables should be relatively accurate as well.

Leading and coincident indicators suggest that the probability of recession is exceeding 90%. If, when the dust settles from Christmas we find that consumers have stayed on the sidelines, and the commotion from the middle East is still with us, the near-term prognosis for business activity will surely be one of unpleasantness. **PW**

Real gross national product
percent change

	91Q1	91Q2	91Q3	91Q4	91
Merrill Lynch	-1.6	0.4	2.6	2.9	-0.1
WEFA	-1.1	1.4	2.8	2.9	0.5
LHM&A*	-2.2	-0.7	2.7	3.7	0.8
Average	-1.6	0.4	2.7	3.2	0.4

*Laurence H. Meyer & Associates

Gross national product price deflator
percent change

	91Q1	91Q2	91Q3	91Q4	91
Merrill Lynch	5.5	4.2	3.5	3.8	4.7
WEFA	4.5	4.9	4.1	3.9	4.5
LHM&A	5.8	3.3	2.3	2.5	3.5
Average	5.3	4.1	3.3	3.4	4.2

Finished producer prices
percent change

	91Q1	91Q2	91Q3	91Q4	91
Merrill Lynch	5.5	4.2	3.5	3.8	4.7
WEFA	4.5	4.9	4.1	3.9	4.5
LHM&A	5.8	3.3	2.3	2.5	3.5
Average	5.3	4.1	3.3	3.4	4.2

Civilian unemployment rate
percent

	91Q1	91Q2	91Q3	91Q4	91
Merrill Lynch	6.3	6.6	6.8	6.8	6.6
WEFA	6.4	6.8	6.9	6.9	6.8
LHM&A	6.3	6.7	6.9	6.9	6.7
Average	6.3	6.7	6.9	6.9	6.7

By John W. Sheridan
Chief Economic Editor

Office equipment stars in economy's survival

The malady of slow growth is inciting domestic decay in many of the U.S.'s historically most important sectors: nonresidential construction, housing, autos and non-auto manufacturing. Despite this herculean drag, the Department of Commerce tells us that the economy has, to date, avoided recession. While the wind of recession is building, at least one shooting star will continue to pull the economy higher: office equipment.

In 1990, revenue growth from the U.S. computer and business equipment industry mirrored 1989's performance, when growth in excess of 10% was witnessed. Since 1970, double digit increases have been the norm, with only 1976's and 1986's performances falling short.

According to the Computer and Business Equipment Manufacturers Association (CBEMA), worldwide revenue from U.S. computer and business equipment advanced nearly 13% over the past 10 years, with the decade of the 1990s expected to record growth of almost 10%.

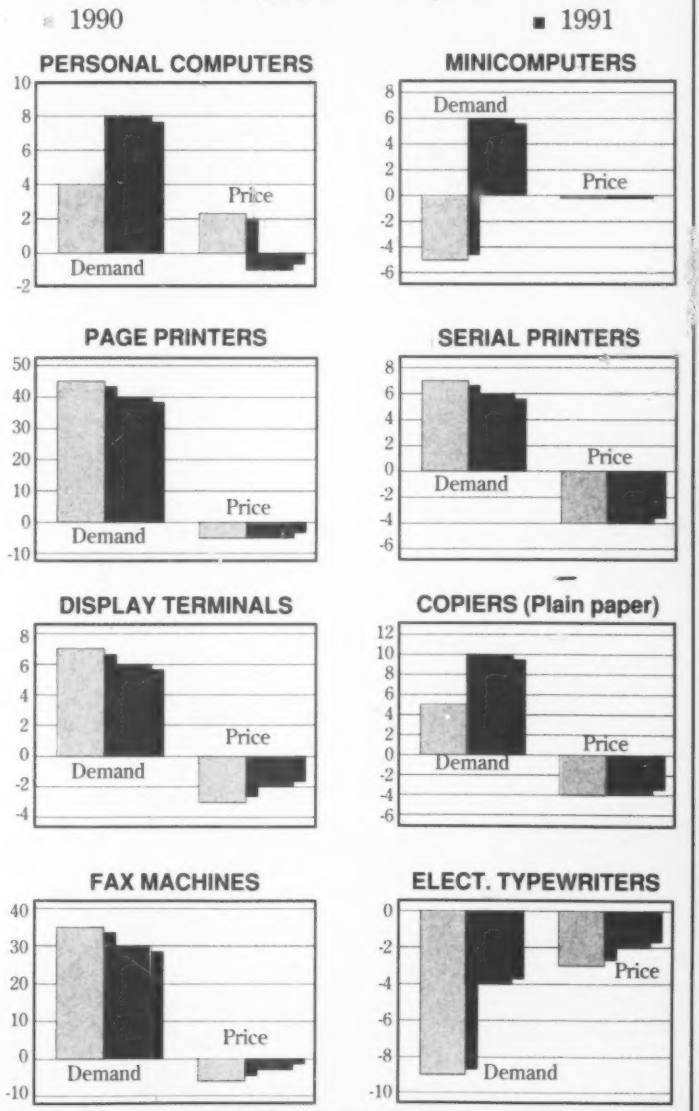
This strong prognosis stems partially from the recession-proof nature of office equipment. As long as business activity continues, information technology (which includes computer, business equipment and telecommunications) will be in demand, because it is one of the primary ways of raising productivity. Increasing productivity boosts profits, but more important, it enhances a firm's competitive position and long-run performance.

Within the computer and office equipment industry, software and services will remain the fastest growing sector (see chart). Accounting for

by John Sheridan
Chief Economic Editor

Business equipment trends:

% change year-over-year



Source: Computer & Business Equipment Manufacturers Assoc.

over 30% of total industry revenue in 1989, industry analysts believe the software and services market will experience double digit growth annually through the turn of the century, and account for 40% or more of the market in the year 2000.

With the exception of electronic typewriters, which PCs are quickly obsoleting, demand for office equipment remains healthy. Nevertheless, business equipment remains a buyer's market, both in product and price.

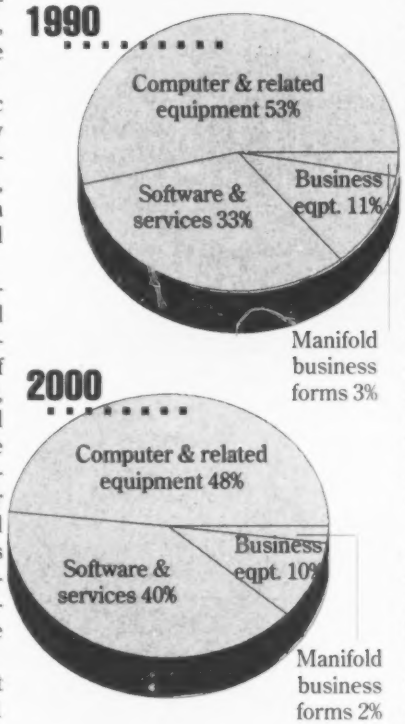
Lower-end product prices will continue to trend down as technological improvements persist in making desirable equipment obsolete. In fact, of the major office products researched, only personal computers displayed an average price rise last year (see chart). Moreover, these price declines are based on average cost per unit and do not reflect the improved performance that office equipment is delivering. Better still, in 1991, average tags for all of the office equipment surveyed are projected to be lower.

Specifically, here's what to expect in the way of average prices in 1991 for key office equipment products: personal computer ($2,384), minicomputer ($56,195), page printer ($3,900), serial printer ($595), display terminal ($1,640), plain paper office copier ($3,309), fax machine ($1,950) and electronic typewriter ($875).

On the demand side, extraordinary rates of growth are being displayed by fax machines and page printers (see chart), offsetting other product lines, most notably computers and copiers, which are currently slumping.

U.S. computer and business equipment industry

By major market segment



Computer demand in 1990 slowed considerably from 1989, when shipments pushed ahead over 10%. The 1990 advance will be lucky to hit 4%, but most of the drag came solely from minicomputers, which could have been off 5%. Some of this is the result of microcomputer advances, which have allowed micros to cannibalize some of the mini market. A rebound toward continued strength is expected to begin this year for all segments of the computer market, as CBEMA projects shipment growth in excess of 8% for the current decade.

As for plain paper copiers, shipments rose nearly 6% in 1989, but will probably finish 1990 up only 5%. The good news is that CBEMA looks for copier orders to jump 10% in 1991. Low-speed copiers are still dominating the market, accounting for 62% of plain paper office copiers.

The latest CBEMA study also makes some estimates for dictation equipment and calculators. 1989 was the seventh year in a row for increases in both revenue and shipments of dictation equipment. Growth in shipments, however, was less than 2% last year, with the average annual growth rate for the 1990s set at less than 1%.

Calculators, conversely, should continue to perform well. Only a 1986 sales dip blemishes an otherwise outstanding decade. Unit shipments of hand-held calculators rose over 4% in 1989 and now represent nearly 70% of the calculator market. While the average price for hand-held calculators stood at $32.61 in 1989, by the turn of the century that price is projected to fall into the neighborhood of $26. Sales during this same time span are anticipated to advance 3-4% per year.

Internationally, North America is far and away the dominant market for information technology (see table), but growing opportunities lay abroad, especially in the European, Russian and Asian markets.

The news regarding business equipment is clearly good, with the future looking to hold lower average prices, more selection and better quality. Newer, more efficient machines will continue to whet buyer appetites, with the domestic office equipment industry showing no signs of succumbing to a decelerating economy. Demand for information technology will continue to drive economic expansion in the United States, adding much-needed stability to a fragile economy. ***PW***

INFORMATION TECHNOLOGY

Worldwide geographic breakout, percent

	Computer equipment	Business equipment	Telecommunications equipment	Software
North American market	48	50	55	50
Asian market	14	9	9	16
European market	37	38	35	31
South & Central American market	1	3	1	2